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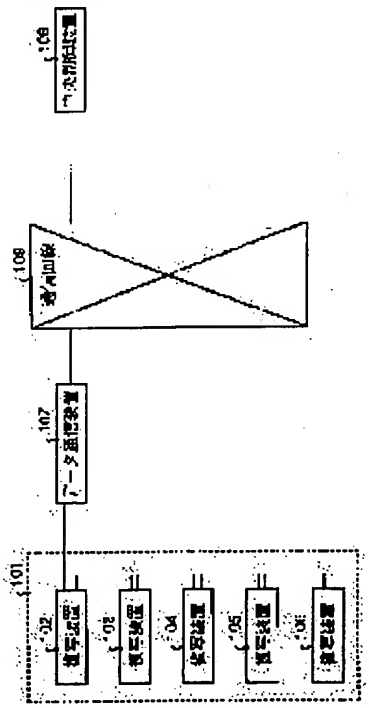
(54) COPYING DEVICE CONTROL SYSTEM



(57)Abstract:
PROBLEM TO BE SOLVED: To provide efficient and speedy service by sending various kinds of information from copying devices to a CPU and various kinds of commands from the CPU to the copying devices.
SOLUTION: This system is constituted of plural copying devices 102-106, a data communication device 107 to which the plural copying devices 102-106 are connected and the CPU 108 connected to the data communication device 107 with a communication channel 109. When time to continue a state for making a copying operation is impossible or a generation frequency exceeds a fixed time or frequency previously set, the state is communicated to the CPU 108 with the data communication device 107, as a communication factor.

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CLAIMS

[Claim(s)]
[Claim 1] Two or more reproducing units and the data communication unit which is connected to said two or more reproducing units, and supervises the condition of two or more of said reproducing units, A communication line is minded [said]. In the reproducing-unit managerial system which notifies the condition of consisting of connected central control units and making impossible copy actuation of two or more of said reproducing units to said central control unit using said data communication unit A detection means by which said two or more reproducing units detect the condition of making said copy actuation impossible, the time check which clocks the time amount which the condition of having been detected by said detection means continues -- with a means said time check -- the reproducing-unit managerial system characterized by having a report factor decision means to opt for what is notified to said data communication unit by making said condition into a report factor when the time amount clocked with the means exceeds the time amount defined beforehand.
[Claim 2] The reproducing-unit managerial system characterized by the condition of making said copy actuation impossible being the jam of a copying paper in a reproducing-unit managerial system according to claim 1.
[Claim 3] The reproducing-unit managerial system characterized by the condition of making said copy actuation impossible being disconnection of the door of said reproducing unit in a reproducing-unit managerial system according to claim 1.
[Claim 4] The reproducing-unit managerial system characterized by being the jam of the manuscript in the manuscript automatic feeder with which said reproducing unit was equipped with the condition of making said copy actuation impossible, in the reproducing-unit managerial system according to claim 1.
[Claim 5] Two or more reproducing units and the data communication unit which said two or more reproducing units are connected, and supervises the condition of two or more of said reproducing units, Said data communication unit and communication line are minded. In the reproducing-unit managerial system which notifies the condition of consisting of connected central control units and making impossible copy actuation of two or more of said reproducing units to said central control unit using said data communication unit A detection means by which said two or more reproducing units detect the condition of making said copy actuation impossible, counting to which the condition of having been detected by said detection means carries out counting of the count generated continuously -- with a means said counting -- the reproducing-unit managerial system characterized by having a report factor decision means to opt for what is notified to said data communication unit by making said condition into a report

factor when the count which carried out counting with the means exceeds the count appointed beforehand.
[Claim 6] The reproducing-unit managerial system characterized by the condition of making said copy actuation impossible being the jam of a copying paper in a reproducing-unit managerial system according to claim 5.
[Claim 7] The reproducing-unit managerial system characterized by being the jam of the manuscript in the manuscript automatic feeder with which said reproducing unit was equipped with the condition of making said copy actuation impossible, in the reproducing-unit managerial system according to claim 5.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the reproducing-unit managerial system which notifies the condition of making impossible especially copy actuation in two or more reproducing units to said central control unit using a data communication unit about a reproducing-unit managerial system.
[0002]
[Description of the Prior Art] If it is in the reproducing-unit managerial system in the former, when the condition and conditions assumed to the reproducing unit occur, data transmission is carried out automatically at an external device (central control unit) (for example, "the information gathering system of image formation equipment" given in JP,2-259663,A, an "image formation device-management system" given in JP,3-226769,A, a "reproducing unit" given in JP,4-17457,A, a "reproducing unit" given in JP,4-318864,A, a "reproducing unit" given in JP,4-318867,A, a "reproducing unit" given in JP,3-66279,A).
[0003]
[Problem(s) to be Solved by the Invention] However, according to the above-mentioned conventional reproducing-unit managerial system, the reproducing unit was supervised and there was a trouble that the equipment for transmitting the supervised result was required only for the same number as the number of a reproducing unit, and system-wide cost increased. On the other hand, When having supervised two or more reproducing units to coincidence and the condition of making sporadic copy actuation impossible occurred, in having notified data-information equipment each time, the limitation was caused to processing of a data communication unit depending on the total of the reproducing unit to supervise, and there was a trouble that report processing to enough monitors and central control units was unrealizable to the whole reproducing unit.
[0004] This invention account[of a top]-takes an example, is made, and a data communication unit is installed between the central control units installed in the base of two or more reproducing units installed by the customer, sale, or service etc. When a data communication unit supervises two or more reproducing units and each reproducing unit notifies only the condition that predetermined time or the count of predetermined passed Transmission of the various reports to a central control unit from a reproducing unit and transmission of the various commands to a reproducing unit from a central control unit are realized, and it aims at aiming at offer of efficient and quick service.

[0005]
[Means for Solving the Problem] In order to attain the above-mentioned purpose, the reproducing-unit managerial system concerning claim 1 Two or more reproducing units and the data communication unit which is connected to said two or more reproducing units, and supervises the condition of two or more of said reproducing units, A communication line is minded [said]. In the reproducing-unit managerial system which notifies the condition of consisting of connected central control units and making impossible copy actuation of two or more of said reproducing units to said central control unit using said data communication unit A detection means by which said two or more reproducing units detect the condition of making said copy actuation impossible, the time check which clocks the time amount which the condition of having been detected by said detection means continues -- with a means said time check -- when the time amount clocked with the means exceeds the time amount defined beforehand, it has a report factor decision means to opt for what is notified to said data communication unit by making said condition into a report factor.
[0006] Moreover, the condition that the reproducing-unit managerial system concerning claim 2 makes said copy actuation impossible is the jam of a copying paper.
[0007] Moreover, the condition that the reproducing-unit managerial system concerning claim 3 makes said copy actuation impossible is disconnection of the door of said reproducing unit.
[0008] Moreover, the reproducing-unit managerial system concerning claim 4 is the jam of the manuscript in the manuscript automatic feeder with which said reproducing unit was equipped with the condition of making said copy actuation impossible.
[0009] Moreover, the reproducing-unit managerial system concerning claim 5 Two or more reproducing units and the data communication unit which said two or more reproducing units are connected, and supervises the condition of two or more of said reproducing units, Said data communication unit and communication line are minded. In the reproducing-unit managerial system which notifies the condition of consisting of connected central control units and making impossible copy actuation of two or more of said reproducing units to said central control unit using said data communication unit A detection means by which said two or more reproducing units detect the condition of making said copy actuation impossible, counting to which the condition of having been detected by said detection means carries out counting of the count generated continuously -- with a means said counting -- when the count which carried out counting with the means exceeds the count appointed beforehand, it has a report factor decision means to opt for what is notified to said data communication unit by making said condition into a report factor.
[0010] Moreover, the condition that the reproducing-unit managerial system concerning claim 6 makes said copy actuation impossible is the jam of a copying paper.
[0011] Moreover, the reproducing-unit managerial system concerning claim 7 is the jam of the manuscript in the manuscript automatic feeder with which said reproducing unit was equipped with the condition of making said copy actuation impossible.
[0012]
[Function] With the reproducing-unit managerial system of this invention, two or more reproducing units detect the condition of making copy actuation impossible, the time amount which the condition of having been detected continues is clocked, and when the clocked time amount exceeds the time amount defined beforehand, it opts for what is notified to a data communication unit by making the condition into a report factor.
[0013] Moreover, it determines to notify the reproducing-unit managerial system concerning

claim 2 to a data communication unit by making the jam of a copying paper into a report factor, when exceeding the time amount as which the time amount which two or more reproducing units clocked the time amount to which the jam of a copying paper is detected and the jam of the detected copying paper continues it, and was clocked was beforehand determined by using as the jam of a copying paper the condition of making copy actuation impossible.
[0014] Moreover, it determines that two or more reproducing units make disconnection of the door of a reproducing unit a report factor by considering the condition make copy actuation impossible as disconnection of the door of a reproducing unit when the time amount which clocked the time amount to which disconnection of the door of a reproducing unit is detected and disconnection of the door of the detected reproducing unit continues it, and was clocked exceeds the time amount defined beforehand, and the reproducing-unit managerial system concerning claim 3 notifies it to a data communication unit.
[0015] Moreover, it determines to notify the reproducing-unit managerial system concerning claim 4 to a data communication unit by making the jam of a manuscript into a report factor, when exceeding the time amount as which the time amount which two or more reproducing units clocked the time amount to which the jam of a manuscript is detected and the jam of the detected manuscript continues it, and was clocked was beforehand determined by using the condition make copy actuation impossible as the jam of the manuscript in the manuscript automatic feeder with which the reproducing unit was equipped.
[0016] Moreover, two or more reproducing units detect the condition of making copy actuation impossible, the reproducing-unit managerial system concerning claim 5 carries out counting of the count which the condition of having been detected generates continuously, and when the count which carried out counting exceeds the count appointed beforehand, it opts for what is notified to a data communication unit by making the condition into a report factor.
[0017] Moreover, two or more reproducing units detect the jam of a copying paper by using as the jam of a copying paper the condition make copy actuation impossible, the reproducing-unit managerial system concerning claim 6 carries out counting of the count which the jam of the detected copying paper generates continuously, and when the count which carried out counting exceeds the count appointed beforehand, it opts for what is notified to a data communication unit by making the jam of the copying paper into a report factor.
[0018] Moreover, the reproducing-unit managerial system concerning claim 7 By using the condition of making copy actuation impossible as the jam of the manuscript in the manuscript automatic feeder with which the reproducing unit was equipped Counting of the count which two or more reproducing units detect the jam of a manuscript, and the jam of the detected manuscript generates continuously is carried out, and when the count which carried out counting exceeds the count appointed beforehand, it opts for what is notified to a data communication unit by making the jam of the manuscript into a report factor.
[0019]
[Embodiment of the Invention] Hereafter, one example of the reproducing-unit managerial system concerning this invention is explained to a detail with reference to a drawing in order of [an example 1], [an example 2], [an example 3], [an example 4], and [an example 5].
[0020] [Example 1]
(Configuration of the reproducing-unit managerial system concerning an example 1) Drawing 1 is the block diagram showing the configuration of the whole reproducing-unit managerial system concerning an example 1. A reproducing-unit managerial system consists of a communication line 109 to which the reproducing-unit group 101 which consists of two or more reproducing

units 102 and 103,104,105,106, the data communication unit 107 connected to the reproducing-unit group 101, the central control unit 108, and a data communication unit 107 and a central control unit 108 are connected in drawing.

[0021] A data communication unit 107 is connected with a central control unit 108 via a communication line 109, and the command about reading the command 102 sent from a central control unit 108, for example, a reproducing unit, and the characteristic value of 106 and the command about changing a reproducing unit 102 thru/or the set point of 106 are transmitted to a reproducing unit 102 thru/or 106. Moreover, on the other hand, a data communication unit 107 transmits various kinds of report information sent from a reproducing unit 102 thru/or 106 to a central control unit 108 via a communication line 109.

[0022] Moreover, the data communication unit 107 is performing energization for 24 hours, and even if it is at night when the reproducing unit 102 thru/or the power source of 106 are turned off, it usually has composition which can communicate between central control units 108.

[0023] Furthermore, multi-drop connection is made by serial communication RS-485 and a data communication unit 107, a reproducing unit 102, or 106 performs two or more reproducing units 102 thru/or the communication link with 106 by communication facility, such as selecting from a data communication unit 107, or polling. In addition, about the contents of selecting and the function of polling, it mentions later.

[0024] Thus, the reproducing-unit managerial system concerning this example has taken a system configuration to which one data communication unit 107 is connected to the reproducing-unit group 101 which consists of one set or two or more reproducing units.

[0025] (Configuration of a data communication unit) Drawing 2 is the block diagram showing the configuration of a data communication unit 107, and a data communication unit consists of a control section 201, the auto dialler section 202, and the line control section 203 in drawing. It connects with the auto dialler section 202 and the line control section 203, and connects with a reproducing unit 102 thru/or 106, and a control section 201 is for performing communications control including a reproducing unit 102 thru/or various control of 106, and the command reception from a central control unit 108.

[0026] The auto dialler section 202 is for performing actuation of automatic call origination to a central control unit 108, when there are a reproducing unit 102 thru/or various reports from 106. The line control section 203 is for performing actuation of change control of whether a communication line 109 is connected to the reproducing-unit group 101 side, or to connect with the common telephone 204 side. The auto dialler section 202 and the line control section 203 perform each actuation by control of a control section 201.

[0027] un-volatilizing [which drawing 3 is the block diagram showing the configuration of a control section 201, and was backed up by CPU301 which performs control when a control section 201 reads the control ROM 302 and Control ROM 302 which stored the control program, RAM303 which carries out the temporary storage of the data, and the cell which does not illustrate / RAM / 304], and a time-check -- it consists of a unit 305, a serial-communication control unit 306, input/output port 307, and interface 308 grade, and it is connected by the bus 309, respectively. Moreover, a bus 309 consists of an address bus, a data bus, and a control bus.

[0028] The device code corresponding to each reproducing unit for specifying one of a central control unit 108, the reproducing unit 102 in the transfer data transmitted to another side from either of the reproducing-unit groups 101, and the reproducing-unit group 101, or 106 sets as un-volatilizing [RAM / 304], The count of a recurrence call, recurrence call spacing, etc. when a line connection is not successful with the telephone number of the central control unit 108 for the

auto dialler section 202 to carry out automatic call origination and the automatic call origination of the auto dialler section 202 are memorized.

[0029] A data communication unit 107 has the control which reads a reproducing unit 102 thru/or each total counter value of 106 by such configuration as typical control performed by a data communication unit 107 being original although various control is performed. Selecting performs this control at the time of day beforehand set over 1 time per or multiple times day from the data communication unit 107. By this control, a data communication unit 107 can always hold the newest total counter value. Therefore, a central control unit 108 can acquire the above-mentioned total counter value from a data communication unit 107 at any time, though the reproducing unit 102 thru/or the power source of 106 serve as OFF.

[0030] (Control configuration of a reproducing unit) the block diagram in which drawing 4 shows a reproducing unit 102 thru/or the control configuration of 106 (it represents and only 102 is shown.) -- it is -- drawing -- setting -- a reproducing unit 102 thru/or the control configuration of 106 -- CPU401, ROM402 and RAM403, un-volatilizing [RAM / 404] and input/output port 405, and a time check -- it consists of a unit 406, a serial communication control unit 407, and an interface 408 between data communication units 107. Moreover, a bus 409 is for connecting each configuration section 401 thru/or 408, and consists of buses, such as an address bus, a data bus, and a control bus.

[0031] Input/output port 405 is connected so that input signals, such as a signal detected by the signal about output loads, such as a reproducing unit 102 thru/or a motor solenoid clutch inside 106, two or more sensors for supervising the jam of a copying paper, etc., may be inputted. a time check -- also while the reproducing unit 102 thru/or the power source of 106 are turned off, the unit 406 is backed up by the cell which is not illustrated so that it can clock correctly. CPU401 -- a time check -- current time can be read from a unit 406 at any time.

[0032] The serial communication control unit 407 is delivering and receiving the signal with a reproducing unit 102 thru/or an actuation display, the manuscript delivery section, the transfer paper after-treatment section in 106 which is not illustrated, etc. An interface 408 is established in order to mitigate the load which performs the communications processing of CPU401. Therefore, if the throughput of CPU401 is enough, the function of an interface 408 can also be incorporated to CPU401. The DIP switch which is not illustrated in an interface 408 can perform a setup of the above-mentioned device code. An interface 408 has the function to perform the reception of the acknowledge or the negative acknowledge from the polling from a data communication unit 107 and monitor processing of selecting, a reproducing unit 102, or 106, the justification check of the transmitted and received data between data communication units 107, a parity check and resending claim processing at the time of error generating, header processing of the transmitted and received data between data communication units 107, etc., respectively.

[0033] (Actuation of selecting) Next, drawing 5 carries out flow chart reference, and actuation of selecting is explained. Selecting is one set which chose and chose one specific set from two or more reproducing units 102 connected to the data communication unit 107 thru/or 106, and the function to perform a communication link. A reproducing unit 102 thru/or 106 have held beforehand the device code peculiar to each reproducing unit, respectively. The device code of a desired reproducing unit is continuously sent out to serial communication RS-485 after that with the combination of the specific code which shows that a data communication unit 107 is a selecting function and which was defined beforehand, or a specific code (S501).

[0034] In each reproducing-unit 102 thru/or 106 side, it compares with the device code which the device code which continues after that, a reproducing unit 102, or 106 holds by receiving the

combination of the specific code which shows the above-mentioned selecting function, or a specific code from serial communication RS-485. The reproducing unit 102 (here) which was in agreement when both the device code was in agreement the case where selecting of the reproducing unit 102 is carried out is assumed. The received specific code Or judge whether it is possible to deal with the SERETINGU function concerning the combination of a specific code, and when it can respond, when it cannot respond, serial communication RS-485 are minded [acknowledge] for a negative acknowledge with the combination of a specific code or a specific code, respectively. It transmits to a data communication unit 107.

[0035] A data communication unit 107 waits for reception of the acknowledge from a reproducing unit 102 (S502). Here, when acknowledge is received, a communication link is performed (S503), and it waits for communicative termination (S504), and selecting is ended.

[0036] In the above-mentioned step S502, when a data communication unit 107 does not receive the acknowledge from a reproducing unit 102, it waits for reception of the negative acknowledge from a reproducing unit 102 (S505), and selecting is ended. Selecting is ended, after only the predetermined time defined beforehand waits for acknowledge or a negative acknowledge (S506) and this predetermined time passes, when receiving neither acknowledge nor a negative acknowledge from a reproducing unit 102.

[0037] (Actuation of polling) Next, drawing 6 carries out flow chart reference, and actuation of polling is explained. Polling is the function to carry out sequential assignment for two or more reproducing units 102 connected to the data communication unit 107 thru/or 106 in predetermined sequence, and to check the existence of a reproducing unit 102 thru/or the connection request from 106. A reproducing unit 102 thru/or 106 have held beforehand the device code peculiar to each reproducing unit, respectively. The device code of the combination of the specific code which shows that a data communication unit 107 is the polling function defined beforehand, or a specific code, and the reproducing unit of 1 which continues after that, or two or more requests is sent out to the reproducing unit 102 by which polling is made by the beginning among the reproducing-unit groups 101 through serial communication RS-485 (S601).

[0038] A reproducing unit 102 compares the device code which the device code which continues after that, a reproducing unit 102, or 106 holds by receiving the combination of the specific code which shows the above-mentioned polling function, or a specific code from serial communication RS-485. After checking that both the device code is in agreement, a reproducing unit 102 starts a communication link through a data communication unit 107 and serial communication RS-485, when there is a report demand to a data communication unit 107 or a central control unit 108, and sends out data. A communication link is ended by transmitting the response of the communication link termination by the combination of the specific code which continued and was beforehand set to termination of data forwarding, or a specific code to a data communication unit 107. When there is no report demand to a data communication unit 107 and a central control unit 108, a data communication unit 107 transmits a termination response to a data communication unit 107.

[0039] A data communication unit 107 waits for reception of the data sent out from the reproducing unit 102 (S602). Here, a data communication unit 107 judges whether the sending-out data is a termination response, when there is reception of sending-out data (S603). Here, if sending-out data are a termination response, a data communication unit 107 will end the polling about a reproducing unit 102.

[0040] In the above-mentioned step S603, if sending-out data are not termination data, it will wait for the communication link termination by the response of the communication link

termination from a reproducing unit 102 (S604), and a data communication unit 107 will end the polling about a reproducing unit 102.

[0041] In the above-mentioned step S602, when the data sent out from a reproducing unit 102 are not received, a data communication unit 107 ends the polling about a reproducing unit 102, after it waits only for the predetermined time defined beforehand (S605) and this predetermined time passes. Since the power source of the reproducing unit 102 which the data communication unit 107 is not connected [******] to the reproducing unit corresponding to a device code, or corresponds is off when sending out of data is not carried out from a reproducing unit 102, the case of being unable to send out data can be considered.

[0042] After the polling about a reproducing unit 102 is completed, a data communication unit 107 performs polling processing performed about the reproducing unit 102, and same processing about a reproducing unit 103 (S606). After polling is completed about a reproducing unit 103, polling is performed in order of a reproducing unit 104, a reproducing unit 105, and a reproducing unit 106. Thus, unless selecting mentioned above occurs on the way, sequential execution of the data communication unit 107 can be carried out to the reproducing-unit group 101 connected, and it can receive the report demand from all reproducing units.

[0043] (Control action of the reproducing unit concerning an example 1) Next, drawing 7 carries out flow chart reference, and the control action of the reproducing unit concerning an example 1 is explained. In addition, control action shown in a flow chart is repeatedly performed for every time interval defined beforehand, as long as the power source of a reproducing unit 102 is turned on. Moreover, only actuation of the expedient top of explanation and a reproducing unit 102 is explained, and the explanation is omitted about a reproducing unit 103 thru/or actuation of 106. Naturally, the same actuation is made also in a reproducing unit 103 thru/or 106.

[0044] In a reproducing unit 102, it supervises whether it is in the condition which the jam of a copying paper generated (S701). Here, when it is in the condition which the jam of a copying paper generated, the completion flag FA of a report is investigated (S702). This completion flag FA of a report is a flag for a reproducing unit 102 not to carry out the multiple-times report of the condition of the same jam generating to a data communication unit 107 between them, when the condition of jam generating of a copying paper is continuing. Here, when the completion flag FA of a report is off, it judges whether the timer A for jam house keeping of a copying paper (henceforth "Timer A") exceeded the predetermined time defined beforehand (S703). another flow chart which does not illustrate Timer A -- the time check of the generating condition of the jam of a copying paper -- it controls. When Timer A exceeds predetermined time, it waits for the polling from a data communication unit 107 (S704), and the report about the generating condition of the jam of the above-mentioned copying paper is transmitted to a data communication unit 107 (S705). After the transmission which starts a report from a reproducing unit 102 is completed, the completion flag FA of a report turned off in the above-mentioned step S702 is turned on (S706). It means that the report to a data communication unit 107 was already completed about the jam of the copying paper generated this time by this. Then, it ends about this control action.

[0045] In the above-mentioned step S703, when Timer A is not over predetermined time, it ends about this control action, without doing anything. Moreover, in the above-mentioned step S702, since having completed the report to a data communication unit 107 is already shown in the case of the last control action when the completion flag FA of a report is ON, it ends about this control action. This condition is continued until the condition of the jam of a copying paper is canceled and the completion flag FA of a report is turned off, as shown below.

[0046] In the above-mentioned step S701, the case of being as follows is assumed about the case where it is not in the condition which the jam of a copying paper generated.
(1) It is the case where generating of the jam of a copying paper is not succeedingly detected from the last control action. In this case, the completion flag FA of a report is still off.
(2) When generating of the jam of a copying paper is detected in the control action before last time and the report to a data communication unit 107 is not yet completed, it is the case where Timer A is not over predetermined time. Also in this case, the completion flag FA of a report is still off.
(3) Generating of the jam of a copying paper is detected in the control action before last time, and it is already the case where the report to a data communication unit 107 is completed. In this case, the completion flag FA of a report serves as ON by actuation of the above-mentioned step S706. Even if it is which case, when it is not in the condition which the jam of a copying paper generated, the completion flag FA of a report is always cleared (S707). Then, Timer A is reset (S708) and it ends about this control action.
[0047] (Effectiveness of an example 1) According to the reproducing-unit managerial system applied to an example 1 as mentioned above, two or more reproducing units 102 thru/or 106 are supervised, and since one data communication unit 107 notifies the supervised result to a central control unit 108, it can reduce system-wide cost.
[0048] Moreover, suitable service correspondence can be carried out, without the operator of a reproducing unit being able to recognize only generating of the jam of a simply uncancelable copying paper, and the operator of a reproducing unit receiving a request of service by a telephone etc. in that case among the jams of a copying paper, since a central control unit 108 can be notified through a data communication unit 107 and a communication line 109 when [which the jam of a copying paper defined beforehand] fixed time amount continuation is carried out.
[0049] [Example 2]
(Configuration of the reproducing-unit managerial system concerning an example 2) an example 2 -- the configuration of an example 1 -- in addition, it notifies that copy operating [of a reproducing unit] became impossible by disconnection of a door by detecting the open condition of the door with which the reproducing unit was equipped. In addition, the fundamental configuration is the same as that of an example 1, and the same sign explains only a part different here in order to show a common configuration.
[0050] In drawing 4 , input/output port 405 is connected so that input signals, such as a signal detected by the signal about output loads, such as a reproducing unit 102 thru/or a motor solenoid clutch inside 106, two or more sensors for supervising disconnection of the door with which the reproducing unit was equipped, etc., may be inputted.
[0051] (Actuation of the reproducing unit concerning an example 2) Next, drawing 8 carries out flow-chart-reference, and the control action of the reproducing unit concerning an example 2 is explained. In addition, control action shown in a flow chart is repeatedly performed for every spacing defined beforehand, as long as the power source of a reproducing unit 102 is turned on. Moreover, only actuation of the expedient top of explanation and a reproducing unit 102 is explained, and the explanation is omitted about a reproducing unit 103 thru/or actuation of 106. Naturally, the same actuation is made also in a reproducing unit 103 thru/or 106.
[0052] In a reproducing unit 102, it supervises whether it is in the condition which disconnection of the door of a reproducing unit 102 generated (S801). Here, when it is in the condition which disconnection of the door of a reproducing unit 102 generated, the completion flag FB of a report

is investigated (S802). This completion flag FB of a report is a flag for a reproducing unit 102 not to carry out the multiple-times report of the condition of disconnection of the same door to a data communication unit 107 in the meantime, when the condition of disconnection of the door of a reproducing unit 102 is continuing. Here, when the completion flag FB of a report is off, it judges whether the timer B for open house keeping of a door (henceforth "Timer B") exceeded the predetermined time defined beforehand (S803). another flow chart which does not illustrate Timer B -- a time check -- it controls. When Timer B exceeds predetermined time, it waits for the polling from a data communication unit 107 (S804), and the report about the open condition of the above-mentioned door is transmitted to a data communication unit 107 (S805). After transmission of a report is completed, the completion flag FB of a report turned off in the above-mentioned step S702 is turned on (S806). It means that the report to a data communication unit 107 was already completed about disconnection of the door generated this time by this. Then, it ends about this control action.

[0053] In the above-mentioned step S803, when Timer B is not over predetermined time, it ends about this control action, without doing anything. Moreover, in the above-mentioned step S802, since having completed the report to a data communication unit 107 is already shown in the case of the last control action when the completion flag FB of a report is ON, it ends about this control action. This condition is continued until the open condition of a door is canceled and the completion flag FB of a report is turned off, as shown below.

[0054] In the above-mentioned step S801, the case of being as follows is assumed about the case where it is not in the condition which disconnection of the door of a reproducing unit 102 generated.

(1) It is the case where generating of disconnection of the door of a reproducing unit 102 is not succeedingly detected from the last control action. In this case, the completion flag FB of a report is still off.

(2) When disconnection of the door of a reproducing unit 102 is detected in the control action before last time and the report to a data communication unit 107 is not yet completed, it is the case where Timer B is not over predetermined time. Also in this case, the completion flag FB of a report is still off.

(3) Disconnection of the door of a reproducing unit 102 is detected in the control action before last time, and it is already the case where the report to a data communication unit 107 is completed. In this case, the completion flag FB of a report serves as ON by actuation of the above-mentioned step S806. Even if it is which case, when it is not in the condition which disconnection of the door of a reproducing unit 102 generated, the completion flag FB of a report is always cleared (S807). Then, Timer B is reset (S808) and it ends about this control action.

[0055] (Effectiveness of an example 2) According to the reproducing-unit managerial system applied to an example 2 as mentioned above Since a central control unit 108 can be notified through a data communication unit 107 and a communication line 109 when [which disconnection of the door of a reproducing unit 102 defined beforehand] fixed time amount continuation is carried out disconnection of the door which a reproducing unit 102 thru/or the operator of 106 cannot cancel simply among a reproducing unit 102 thru/or door disconnection of 106 -- for example Only generating of breakage of a door or failure of a door disconnection sensor can be recognized, and suitable service correspondence can be carried out in that case, without a reproducing unit 102 thru/or the operator of 106 receiving a request of service by a telephone etc.

[0056] [Example 3]

(Configuration of the reproducing-unit managerial system concerning an example 3) an example 3 -- the configuration of an example 1 -- in addition, it notifies that copy operating [of a reproducing unit] became impossible with the manuscript jam by detecting the condition of the manuscript jam of the manuscript automatic feeder which was added to the reproducing unit and which is not illustrated. In addition, the fundamental configuration is the same as that of an example 1, and the same sign explains only a part different here in order to show a common configuration.

[0057] Input/output port 405 is connected so that input signals, such as a signal detected by the signal about output loads, such as a reproducing unit 102 thru/or a motor solenoid clutch inside 106, two or more sensors for supervising the manuscript jam in the manuscript automatic feeder added to a reproducing unit 102 thru/or 106, etc., may be inputted.

[0058] (Actuation of the reproducing unit concerning an example 3) Next, drawing 9 carries out flow chart reference, and the control action of the reproducing unit concerning an example 3 is explained. In addition, control action shown in a flow chart is repeatedly performed for every spacing defined beforehand, as long as the power source of a reproducing unit 102 is turned on. Moreover, only actuation of the expedient top of explanation and a reproducing unit 102 is explained, and the explanation is omitted about a reproducing unit 103 thru/or actuation of 106. Naturally, the same actuation is made also in a reproducing unit 103 thru/or 106.

[0059] In the manuscript automatic feeder which was added to the reproducing unit 102 and which is not illustrated, it supervises whether it is in the condition which the jam of a manuscript generated (S901). Here, when it is in the condition which the jam of a manuscript generated, the completion flag FC of a report is investigated (S902). This completion flag FC of a report is a flag for a reproducing unit 102 not to carry out the multiple-times report of the condition of the same jam generating to a data communication unit 107 in the meantime, when the condition of jam generating of a manuscript is continuing. Here, when the completion flag FC of a report is off, it judges whether the timer C for jam house keeping of a manuscript (henceforth "Timer C") exceeded the predetermined time defined beforehand (S903). another flow chart which does not illustrate Timer C -- the condition of the jam of a manuscript -- a time check -- it controls. When Timer C exceeds predetermined time, it waits for the polling from a data communication unit 107 (S904), and the report about the generating condition of the jam of the above-mentioned copying paper is transmitted to a data communication unit 107 (S905). After transmission of a report is completed, the completion flag FC of a report turned off in the above-mentioned step S902 is turned on (S906). It means that the report to a data communication unit 107 was already completed about the jam of the manuscript generated this time by this. Then, it ends about this control action.

[0060] In the above-mentioned step S903, when Timer C is not over predetermined time, it ends about this control action, without doing anything. Moreover, in the above-mentioned step S902, since having completed the report to a data communication unit 107 is already shown in the case of the last control action when the completion flag FC of a report is ON, it ends about this control action. This condition is continued until the condition of the jam of a manuscript is canceled and the completion flag FC of a report is turned off, as shown below.

[0061] In the above-mentioned step S901, the case of being as follows is assumed about the case where it is not in the condition which the jam of a manuscript generated.

(1) It is the case where generating of the jam of a manuscript is not succeedingly detected from the last control action. In this case, the completion flag FC of a report is still off.

(2) When generating of the jam of a manuscript is detected in the control action before last time

and the report to a data communication unit 107 is not yet completed, it is the case where Timer C is not over predetermined time. Also in this case, the completion flag FC of a report is still off. (3) Generating of the jam of a manuscript is detected in the control action before last time, and it is already the case where the report to a data communication unit 107 is completed. In this case, the completion flag FC of a report serves as ON by actuation of the above-mentioned step 906. Even if it is which case, when it is not in the condition which the jam of a copying paper generated, the completion flag FC of a report is always cleared (S907). Then, Timer C is reset (S908) and it ends about this control action.

[0062] (Effectiveness of an example 3) According to the reproducing-unit managerial system applied to an example 3 as mentioned above Since a central control unit 108 can be notified through a data communication unit 107 and a communication line 109 when [which the jam of the manuscript in a manuscript automatic feeder defined beforehand] fixed time amount continuation is carried out the jam of the manuscript which a reproducing unit 102 thru/or the operator of 106 cannot cancel simply among the jams of a manuscript -- for example Only generating of failure of the manuscript automatic feeder itself or failure of a jam sensor can be recognized, and suitable service correspondence can be carried out in that case, without a reproducing unit 102 thru/or the operator of 106 receiving a request of service by a telephone etc.

[0063] [Example 4]

(Configuration of the reproducing-unit managerial system concerning an example 4) an example 4 -- the configuration of an example 1 -- in addition, it has RAM which memorizes the result of the counter and counter which carry out counting of the count. In addition, the fundamental configuration is the same as that of an example 1, and the same sign explains only a part different here in order to show a common configuration.

[0064] (Actuation of the reproducing unit concerning an example 4) Next, drawing 10 carries out flow chart reference, and the control action of the reproducing unit concerning an example 4 is explained. In addition, the control action shown in a flow chart is restricted to the time when the reproducing unit 102 is performing copy actuation, and is repeatedly performed for every spacing defined beforehand. Moreover, only actuation of the expedient top of explanation and a reproducing unit 102 is explained, and the explanation is omitted about a reproducing unit 103 thru/or actuation of 106. Naturally, the same actuation is made also in a reproducing unit 103 thru/or 106.

[0065] In the reproducing unit 102 which is performing copy actuation, it supervises whether it was discharged by the form discharge section which a copying paper does not illustrate (S1001). Here, the monitor of whether the copying paper was discharged is performed by turning on and off of a discharge signal. Namely, if one sheet of copying paper carries out the completion of discharge to the above-mentioned form discharge section, the above-mentioned discharge signal will be in the condition of ON. Next, the above-mentioned discharge signal holds the condition of OFF until the above-mentioned discharge signal becomes off and the following copying paper carries out the completion of discharge to the above-mentioned form discharge section at the same time it checks the above-mentioned discharge signal. The monitor of whether the copying paper was discharged by this is performed.

[0066] In the above-mentioned step S1001, when a copying paper is not discharged by the above-mentioned form discharge section, the completion flag FD of a report is investigated (S1002). This completion flag FD of a report is a flag for a reproducing unit 102 not to carry out the multiple-times report of the condition of the same jam generating to a data communication unit 107 in the meantime, when the condition of having become the count of predetermined

which the count of jam generating of a copying paper appointed beforehand is continuing. Here, when it supervises whether the jam of a copying paper is generated when the completion flag FD of a report is off (S1003) and the jam is generated, it judges whether it is the same cause as the jam which the jam generated in this copy actuation generated in the last copy actuation (S1004). Decision whether it is the same cause is performed by whether the part which the jam of a copying paper generated is the same. That is, if the parts which the jam generated differ, since a different sensor among the sensors with which the conveyance way was equipped will detect a copying paper, it judges whether it is the same cause by by which sensor the jam was detected.

[0067] In the above-mentioned step S1004, when it is the same cause as the jam generated in the last copy actuation, "1" addition of the count counter CD of a paper jam is carried out (S1005), and it judges whether the above-mentioned count counter CD of a paper jam set beforehand, and reached the count value of predetermined (S1006). When the above-mentioned count counter CD of a paper jam sets beforehand and reaches the count value of predetermined, it waits for the polling from a data communication unit 107 (S1007), and the report about the generating condition of the jam of the above-mentioned copying paper is transmitted to a data communication unit 107 (S1008). After transmission of a report is completed, the completion flag FD of a report turned off in the above-mentioned step S1002 is turned on (S1009). It means that the report to a data communication unit 107 was already completed about the jam of the copying paper generated continuously this time by that cause. Then, it ends about this control action.

[0068] In the above-mentioned step S1004, when it is a different cause from the jam generated in the last copy actuation, the cause of the jam of this copying paper is memorized (S1010), and the above-mentioned count counter CD of a paper jam is set to "1" (S1011). Then, it ends about this control action.

[0069] In the above-mentioned step S1006, when the above-mentioned count counter CD of a paper jam has not reached the count value of predetermined defined beforehand, it ends about this control action. Moreover, in the above-mentioned step S1003, when the jam of a copying paper is not generated, it ends about this control action, without doing anything.

[0070] Moreover, in the above-mentioned step S1002, since having completed the report to a data communication unit 107 is already shown in the case of the last control action when the completion flag FD of a report is ON, it ends about this control action. This condition is continued until the condition of the jam of a copying paper is canceled and the completion flag FD of a report is turned off so that it may mention later.

[0071] In the above-mentioned step S1001, when a copying paper is discharged by the above-mentioned form discharge section, the above-mentioned count counter CD of a paper jam is reset (S1012), and it ends about this control action.

[0072] (Effectiveness of an example 4) According to the reproducing-unit managerial system applied to an example 4 as mentioned above Since a central control unit 108 can be notified through a data communication unit 107 and a communication line 109 when [which the jam of a copying paper defined beforehand] count generating is carried out For the reason of being unable to remove completely the copying paper which raised failure of a sensor, paper conveyance components, etc., and a jam among the jams of a copying paper, but the piece of paper remaining in equipment Only generating of the jam of the copying paper which happens frequently can be recognized, and suitable service correspondence can be carried out in that case, without a reproducing unit 102 thru/or the operator of 106 receiving a request of service by a telephone etc.

[0073] [Example 5]
(Configuration of the reproducing-unit managerial system concerning an example 5) an example 5 -- the configuration of an example 4 -- in addition, it notifies that copy operating [of a reproducing unit] became impossible with the manuscript jam by detecting the condition of the manuscript jam of the manuscript automatic feeder added to the reproducing unit. In addition, the fundamental configuration is the same as that of an example 4, and the same sign explains only a part different here in order to show a common configuration.
[0074] Input/output port 405 is connected so that input signals, such as a signal detected by the signal about output loads, such as a reproducing unit 102 thru/or a motor solenoid clutch inside 106, two or more sensors for supervising the manuscript jam in the manuscript automatic feeder added to a reproducing unit 102 thru/or 106, etc., may be inputted.
[0075] (Actuation of the reproducing unit concerning an example 5) Next, drawing 11 carries out flow chart reference, and the control action of the reproducing unit concerning an example 5 is explained. In addition, the control action shown in a flow chart is restricted to the time when the reproducing unit 102 is performing copy actuation, and is repeatedly performed for every spacing defined beforehand. Moreover, only actuation of the expedient top of explanation and a reproducing unit 102 is explained, and the explanation is omitted about a reproducing unit 103 thru/or actuation of 106. Naturally, the same actuation is made also in a reproducing unit 103 thru/or 106.
[0076] In the automatic manuscript feed gear added to the reproducing unit 102 which is performing copy actuation, it supervises whether it was discharged by the manuscript discharge section which a manuscript does not illustrate (S1101). Here, the monitor of whether the manuscript was discharged is performed by turning on and off of a discharge signal. Namely, if the manuscript of one sheet carries out the completion of discharge to the above-mentioned form discharge section, the above-mentioned discharge signal will be in the condition of ON. Next, the above-mentioned discharge signal holds the condition of OFF until the above-mentioned discharge signal becomes off and the following manuscript carries out the completion of discharge to the above-mentioned form discharge section at the same time it checks the above-mentioned discharge signal. The monitor of whether the manuscript was discharged by this is performed.
[0077] In the above-mentioned step S1101, when a manuscript is not discharged by the above-mentioned form discharge section, the completion flag FE of a report is investigated (S1102). This completion flag FE of a report is a flag for a reproducing unit 102 not to carry out the multiple-times report of the condition of the same jam generating to a data communication unit 107 in the meantime, when the condition of having become the count of predetermined which the count of jam generating of a manuscript appointed beforehand is continuing. Here, when it supervises whether the jam of a manuscript is generated when the completion flag FE of a report is off (S1103) and the jam is generated, it judges whether it is the same cause as the jam which the jam generated in this copy actuation generated in the last copy actuation (S1104). Decision whether it is the same cause is performed by whether the part which the jam of a manuscript generated is the same. That is, if the parts which the jam generated differ, since a different sensor among the sensors with which the conveyance way of a manuscript was equipped will detect the jam of a manuscript, it judges whether it is the same cause by by which sensor the jam was detected.
[0078] In the above-mentioned step S1104, when it is the same cause as the jam generated in the last copy actuation, "1" addition of the count counter CE of a manuscript jam is carried out

(S1105), and it judges whether the above-mentioned count counter CE of a manuscript jam reached the count value of predetermined defined beforehand (S1106). When the above-mentioned count counter CE of a manuscript jam sets beforehand and reaches the count value of predetermined, it waits for the polling from a data communication unit 107 (S1107), and the report about the generating condition of the jam of the above-mentioned manuscript is transmitted to a data communication unit 107 (S1108). After transmission of a report is completed, the completion flag FE of a report turned off in the above-mentioned step S1002 is turned on (S1109). It means that the report to a data communication unit 107 was already completed about the jam of the manuscript generated continuously this time by that cause. Then, it ends about this control action.

[0079] In the above-mentioned step S1104, when it is a different cause from the jam generated in the last copy actuation, the cause of the jam of this manuscript is memorized (S1110), and the above-mentioned count counter CE of a manuscript jam is set to "1" (S1111). Then, it ends about this control action.

[0080] In the above-mentioned step S1106, when the above-mentioned count counter CE of a manuscript jam has not reached the count value of predetermined defined beforehand, it ends about this control action. Moreover, in the above-mentioned step S1103, when the jam of a manuscript is not generated, it ends about this control action, without doing anything.

[0081] Moreover, in the above-mentioned step S1102, since having completed the report to a data communication unit 107 is already shown in the case of the last control action when the completion flag FE of a report is ON, it ends about this control action. This condition is continued until the condition of the jam of manuscript paper is canceled and the completion flag FE of a report is turned off so that it may mention later.

[0082] In the above-mentioned step S1101, when a manuscript is discharged by the above-mentioned form discharge section, the above-mentioned count counter CE of a manuscript jam is reset (S1112), and it ends about this control action.

[0083] (Effectiveness of an example 5) According to the reproducing-unit managerial system applied to an example 5 as mentioned above Since a central control unit 108 can be notified through a data communication unit 107 and a communication line 109 when [which the jam of a manuscript defined beforehand] count generating is carried out For the reason of being unable to remove completely the manuscript which raised failure of a sensor, paper conveyance components, etc., and a jam among the jams of a manuscript, but the piece of paper remaining in equipment Only generating of the jam of the manuscript which happens frequently can be recognized, and suitable service correspondence can be carried out in that case, without a reproducing unit 102 thru/or the operator of 106 receiving a request of service by a telephone etc.

[0084]

[Effect of the Invention] As explained above, the reproducing-unit managerial system (claim 1) of this invention can reduce system-wide cost by notifying the result to which one data communication unit supervised and supervised two or more reproducing units to a central control unit. Moreover, two or more reproducing units detect the condition of making copy actuation impossible, clock the time amount which the condition of having been detected continues, and the condition is made into a report factor when the clocked time amount exceeds the time amount defined beforehand. Since the operator of a reproducing unit notifies only a simply uncancelable chronic condition to a data communication unit while in the condition of making copy actuation impossible by opting for what is notified to a data communication unit Suitable service correspondence can be carried out to a customer, preventing delay of the information in a data

communication unit.

[0085] Moreover, a reproducing-unit managerial system (claim 2) Clock the time amount to which the jam of a copying paper is detected and the jam of the detected copying paper continues it, and two or more reproducing units make the jam of a copying paper a report factor, when the clocked time amount exceeds the time amount defined beforehand. Since the operator of a reproducing unit notifies only the jam of a simply uncancelable chronic copying paper to a data communication unit by opting for what is notified to a data communication unit Suitable service correspondence can be carried out about the jam of a copying paper, preventing delay of the information in a data communication unit.

[0086] Moreover, a reproducing-unit managerial system (claim 3) Clock the time amount to which disconnection of the door of a reproducing unit is detected and disconnection of the door of the detected reproducing unit continues it, and two or more reproducing units make disconnection of the door of a reproducing unit a report factor, when the clocked time amount exceeds the time amount defined beforehand. Since the operator of a reproducing unit notifies only the open condition of a simply uncancelable chronic door to a data communication unit by opting for what is notified to a data communication unit Suitable service correspondence can be carried out about disconnection of a door, preventing delay of the information in a data communication unit.

[0087] Moreover, a reproducing-unit managerial system (claim 4) Clock the time amount which two or more reproducing units detect the jam of the manuscript in a manuscript automatic feeder, and the jam of the detected manuscript continues, and the jam of a manuscript is made into a report factor when the clocked time amount exceeds the time amount defined beforehand. Since the operator of a reproducing unit notifies only the jam of a simply uncancelable chronic manuscript to a data communication unit by opting for what is notified to a data communication unit Suitable service correspondence can be carried out about the jam of the manuscript in a manuscript automatic feeder, preventing delay of the information in a data communication unit. .

[0088] Moreover, the reproducing-unit managerial system (claim 5) of this invention can reduce system-wide cost by notifying the result to which one data communication unit supervised and supervised two or more reproducing units to a central control unit. Moreover, two or more reproducing units detect the condition of making copy actuation impossible, and the condition of having been detected continues. Carry out counting of the count to generate and by determining what is notified to a data communication unit by making the condition into a report factor when the count which carried out counting exceeds the count appointed beforehand Suitable service correspondence can be carried out to a customer, preventing delay of the information in a data communication unit, since the operator of a reproducing unit notifies only a simply uncancelable chronic condition to a data communication unit while in the condition of making copy actuation impossible.

[0089] Moreover, a reproducing-unit managerial system (claim 6) Two or more reproducing units detect the jam of a copying paper, and the jam of the detected copying paper continues. By determining what is notified to a data communication unit by making the jam of the copying paper into a report factor when counting is carried out and the count which carries out counting for the count to generate, and which carried out counting exceeds the count appointed beforehand Suitable service correspondence can be carried out about the jam of a copying paper, preventing delay of the information in a data communication unit, since the operator of a reproducing unit notifies only the jam of a simply uncancelable chronic copying paper to a data communication unit.

[0090] Moreover, a reproducing-unit managerial system (claim 7) Two or more reproducing units detect the jam of the manuscript in a manuscript automatic feeder, and the jam of the detected manuscript continues. By determining what is notified to a data communication unit by making the jam of the manuscript into a report factor when counting is carried out and the count which carries out counting for the count to generate, and which carried out counting exceeds the count appointed beforehand Suitable service correspondence can be carried out about the jam of the manuscript in a manuscript automatic feeder, preventing delay of the information in a data communication unit, since the operator of a reproducing unit notifies only the jam of a simply uncancelable chronic manuscript to a data communication unit.

TECHNICAL FIELD

[Field of the Invention] This invention relates to the reproducing-unit managerial system which notifies the condition of making impossible especially copy actuation in two or more reproducing units to said central control unit using a data communication unit about a reproducing-unit managerial system.

PRIOR ART

[Description of the Prior Art] If it is in the reproducing-unit managerial system in the former, when the condition and conditions assumed to the reproducing unit occur, data transmission is carried out automatically at an external device (central control unit) (for example, "the information gathering system of image formation equipment" given in JP,2-259663,A, an "image formation device-management system" given in JP,3-226769,A, a "reproducing unit" given in JP,4-17457,A, a "reproducing unit" given in JP,4-318864,A, a "reproducing unit" given in JP,4-318867,A, a "reproducing unit" given in JP,3-66279,A).

EFFECT OF THE INVENTION

(Effectiveness of an example 1) According to the reproducing-unit managerial system applied to an example 1 as mentioned above, two or more reproducing units 102 thru/or 106 are supervised, and since one data communication unit 107 notifies the supervised result to a central control unit 108, it can reduce system-wide cost.

[0048] Moreover, suitable service correspondence can be carried out, without the operator of a reproducing unit being able to recognize only generating of the jam of a simply uncancelable copying paper, and the operator of a reproducing unit receiving a request of service by a telephone etc. in that case among the jams of a copying paper, since a central control unit 108 can be notified through a data communication unit 107 and a communication line 109 when [which the jam of a copying paper defined beforehand] fixed time amount continuation is carried out.

[0049] [Example 2]

(Configuration of the reproducing-unit managerial system concerning an example 2) an example

2 -- the configuration of an example 1 -- in addition, it notifies that copy operating [of a reproducing unit] became impossible by disconnection of a door by detecting the open condition of the door with which the reproducing unit was equipped. In addition, the fundamental configuration is the same as that of an example 1, and the same sign explains only a part different here in order to show a common configuration.

[0050] In drawing 4 , input/output port 405 is connected so that input signals, such as a signal detected by the signal about output loads, such as a reproducing unit 102 thru/or a motor solenoid clutch inside 106, two or more sensors for supervising disconnection of the door with which the reproducing unit was equipped, etc., may be inputted.

[0051] (Actuation of the reproducing unit concerning an example 2) Next, drawing 8 carries out flow chart reference, and the control action of the reproducing unit concerning an example 2 is explained. In addition, control action shown in a flow chart is repeatedly performed for every spacing defined beforehand, as long as the power source of a reproducing unit 102 is turned on. Moreover, only actuation of the expedient top of explanation and a reproducing unit 102 is explained, and the explanation is omitted about a reproducing unit 103 thru/or actuation of 106. Naturally, the same actuation is made also in a reproducing unit 103 thru/or 106.

[0052] In a reproducing unit 102, it supervises whether it is in the condition which disconnection of the door of a reproducing unit 102 generated (S801). Here, when it is in the condition which disconnection of the door of a reproducing unit 102 generated, the completion flag FB of a report is investigated (S802). This completion flag FB of a report is a flag for a reproducing unit 102 not to carry out the multiple-times report of the condition of disconnection of the same door to a data communication unit 107 in the meantime, when the condition of disconnection of the door of a reproducing unit 102 is continuing. Here, when the completion flag FB of a report is off, it judges whether the timer B for open house keeping of a door (henceforth "Timer B") exceeded the predetermined time defined beforehand (S803). another flow chart which does not illustrate Timer B -- a time check -- it controls. When Timer B exceeds predetermined time, it waits for the polling from a data communication unit 107 (S804), and the report about the open condition of the above-mentioned door is transmitted to a data communication unit 107 (S805). After transmission of a report is completed, the completion flag FB of a report turned off in the above-mentioned step S702 is turned on (S806). It means that the report to a data communication unit 107 was already completed about disconnection of the door generated this time by this. Then, it ends about this control action.

[0053] In the above-mentioned step S803, when Timer B is not over predetermined time, it ends about this control action, without doing anything. Moreover, in the above-mentioned step S802, since having completed the report to a data communication unit 107 is already shown in the case of the last control action when the completion flag FB of a report is ON, it ends about this control action. This condition is continued until the open condition of a door is canceled and the completion flag FB of a report is turned off, as shown below.

[0054] In the above-mentioned step S801, the case of being as follows is assumed about the case where it is not in the condition which disconnection of the door of a reproducing unit 102 generated.

(1) It is the case where generating of disconnection of the door of a reproducing unit 102 is not succeedingly detected from the last control action. In this case, the completion flag FB of a report is still off.

(2) When disconnection of the door of a reproducing unit 102 is detected in the control action before last time and the report to a data communication unit 107 is not yet completed, it is the

case where Timer B is not over predetermined time. Also in this case, the completion flag FB of a report is still off.
(3) Disconnection of the door of a reproducing unit 102 is detected in the control action before last time, and it is already the case where the report to a data communication unit 107 is completed. In this case, the completion flag FB of a report serves as ON by actuation of the above-mentioned step S806. Even if it is which case, when it is not in the condition which disconnection of the door of a reproducing unit 102 generated, the completion flag FB of a report is always cleared (S807). Then, Timer B is reset (S808) and it ends about this control action.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, according to the above-mentioned conventional reproducing-unit managerial system, the reproducing unit was supervised and there was a trouble that the equipment for transmitting the supervised result was required only for the same number as the number of a reproducing unit, and system-wide cost increased. On the other hand, When having supervised two or more reproducing units to coincidence and the condition of making sporadic copy actuation impossible occurred, in having notified data-information equipment each time, the limitation was caused to processing of a data communication unit depending on the total of the reproducing unit to supervise, and there was a trouble that report processing to enough monitors and central control units was unrealizable to the whole reproducing unit.
[0004] This invention account[of a top]-takes an example, is made, and a data communication unit is installed between the central control units installed in the base of two or more reproducing units installed by the customer, sale, or service etc. When a data communication unit supervises two or more reproducing units and each reproducing unit notifies only the condition that predetermined time or the count of predetermined passed Transmission of the various reports to a central control unit from a reproducing unit and transmission of the various commands to a reproducing unit from a central control unit are realized, and it aims at aiming at offer of efficient and quick service.

MEANS

[Means for Solving the Problem] In order to attain the above-mentioned purpose, the reproducing-unit managerial system concerning claim 1 Two or more reproducing units and the data communication unit which is connected to said two or more reproducing units, and supervises the condition of two or more of said reproducing units, A communication line is minded [said]. In the reproducing-unit managerial system which notifies the condition of consisting of connected central control units and making impossible copy actuation of two or more of said reproducing units to said central control unit using said data communication unit A detection means by which said two or more reproducing units detect the condition of making said copy actuation impossible, the time check which clocks the time amount which the condition of having been detected by said detection means continues -- with a means said time check -- when the time amount clocked with the means exceeds the time amount defined

beforehand, it has a report factor decision means to opt for what is notified to said data communication unit by making said condition into a report factor.
[0006] Moreover, the condition that the reproducing-unit managerial system concerning claim 2 makes said copy actuation impossible is the jam of a copying paper.
[0007] Moreover, the condition that the reproducing-unit managerial system concerning claim 3 makes said copy actuation impossible is disconnection of the door of said reproducing unit.
[0008] Moreover, the reproducing-unit managerial system concerning claim 4 is the jam of the manuscript in the manuscript automatic feeder with which said reproducing unit was equipped with the condition of making said copy actuation impossible.
[0009] Moreover, the reproducing-unit managerial system concerning claim 5 Two or more reproducing units and the data communication unit which said two or more reproducing units are connected, and supervises the condition of two or more of said reproducing units, Said data communication unit and communication line are minded. In the reproducing-unit managerial system which notifies the condition of consisting of connected central control units and making impossible copy actuation of two or more of said reproducing units to said central control unit using said data communication unit A detection means by which said two or more reproducing units detect the condition of making said copy actuation impossible, counting to which the condition of having been detected by said detection means carries out counting of the count generated continuously -- with a means said counting -- when the count which carried out counting with the means exceeds the count appointed beforehand, it has a report factor decision means to opt for what is notified to said data communication unit by making said condition into a report factor.
[0010] Moreover, the condition that the reproducing-unit managerial system concerning claim 6 makes said copy actuation impossible is the jam of a copying paper.
[0011] Moreover, the reproducing-unit managerial system concerning claim 7 is the jam of the manuscript in the manuscript automatic feeder with which said reproducing unit was equipped with the condition of making said copy actuation impossible.

OPERATION

[Function] With the reproducing-unit managerial system of this invention, two or more reproducing units detect the condition of making copy actuation impossible, the time amount which the condition of having been detected continues is clocked, and when the clocked time amount exceeds the time amount defined beforehand, it opts for what is notified to a data communication unit by making the condition into a report factor.
[0013] Moreover, it determines to notify the reproducing-unit managerial system concerning claim 2 to a data communication unit by making the jam of a copying paper into a report factor, when exceeding the time amount as which the time amount which two or more reproducing units clocked the time amount to which the jam of a copying paper is detected and the jam of the detected copying paper continues it, and was clocked was beforehand determined by using as the jam of a copying paper the condition of making copy actuation impossible.
[0014] Moreover, it determines that two or more reproducing units make disconnection of the door of a reproducing unit a report factor by considering the condition make copy actuation impossible as disconnection of the door of a reproducing unit when the time amount which clocked the time amount to which disconnection of the door of a reproducing unit is detected and

disconnection of the door of the detected reproducing unit continues it, and was clocked exceeds the time amount defined beforehand, and the reproducing-unit managerial system concerning claim 3 notifies it to a data communication unit.

[0015] Moreover, it determines to notify the reproducing-unit managerial system concerning claim 4 to a data communication unit by making the jam of a manuscript into a report factor, when exceeding the time amount as which the time amount which two or more reproducing units clocked the time amount to which the jam of a manuscript is detected and the jam of the detected manuscript continues it, and was clocked was beforehand determined by using the condition make copy actuation impossible as the jam of the manuscript in the manuscript automatic feeder with which the reproducing unit was equipped.

[0016] Moreover, two or more reproducing units detect the condition of making copy actuation impossible, the reproducing-unit managerial system concerning claim 5 carries out counting of the count which the condition of having been detected generates continuously, and when the count which carried out counting exceeds the count appointed beforehand, it opts for what is notified to a data communication unit by making the condition into a report factor.

[0017] Moreover, two or more reproducing units detect the jam of a copying paper by using as the jam of a copying paper the condition make copy actuation impossible, the reproducing-unit managerial system concerning claim 6 carries out counting of the count which the jam of the detected copying paper generates continuously, and when the count which carried out counting exceeds the count appointed beforehand, it opts for what is notified to a data communication unit by making the jam of the copying paper into a report factor.

[0018] Moreover, the reproducing-unit managerial system concerning claim 7 By using the condition of making copy actuation impossible as the jam of the manuscript in the manuscript automatic feeder with which the reproducing unit was equipped Counting of the count which two or more reproducing units detect the jam of a manuscript, and the jam of the detected manuscript generates continuously is carried out, and when the count which carried out counting exceeds the count appointed beforehand, it opts for what is notified to a data communication unit by making the jam of the manuscript into a report factor.

[0019]

[Embodiment of the Invention] Hereafter, one example of the reproducing-unit managerial system concerning this invention is explained to a detail with reference to a drawing in order of [an example 1], [an example 2], [an example 3], [an example 4], and [an example 5].

[0020] [Example 1]

(Configuration of the reproducing-unit managerial system concerning an example 1) Drawing 1 is the block diagram showing the configuration of the whole reproducing-unit managerial system concerning an example 1. A reproducing-unit managerial system consists of a communication line 109 to which the reproducing-unit group 101 which consists of two or more reproducing units 102 and 103,104,105,106, the data communication unit 107 connected to the reproducing-unit group 101, the central control unit 108, and a data communication unit 107 and a central control unit 108 are connected in drawing.

[0021] A data communication unit 107 is connected with a central control unit 108 via a communication line 109, and the command about reading the command 102 sent from a central control unit 108, for example, a reproducing unit, and the characteristic value of 106 and the command about changing a reproducing unit 102 thru/or the set point of 106 are transmitted to a reproducing unit 102 thru/or 106. Moreover, on the other hand, a data communication unit 107 transmits various kinds of report information sent from a reproducing unit 102 thru/or 106 to a

central control unit 108 via a communication line 109.
[0022] Moreover, the data communication unit 107 is performing energization for 24 hours, and even if it is at night when the reproducing unit 102 thru/or the power source of 106 are turned off, it usually has composition which can communicate between central control units 108.
[0023] Furthermore, multi-drop connection is made by serial communication RS-485 and a data communication unit 107, a reproducing unit 102, or 106 performs two or more reproducing units 102 thru/or the communication link with 106 by communication facility, such as selecting from a data communication unit 107, or polling. In addition, about the contents of selecting and the function of polling, it mentions later.
[0024] Thus, the reproducing-unit managerial system concerning this example has taken a system configuration to which one data communication unit 107 is connected to the reproducing-unit group 101 which consists of one set or two or more reproducing units.
[0025] (Configuration of a data communication unit) Drawing 2 is the block diagram showing the configuration of a data communication unit 107, and a data communication unit consists of a control section 201, the auto dialler section 202, and the line control section 203 in drawing. It connects with the auto dialler section 202 and the line control section 203, and connects with a reproducing unit 102 thru/or 106, and a control section 201 is for performing communications control including a reproducing unit 102 thru/or various control of 106, and the command reception from a central control unit 108.
[0026] The auto dialler section 202 is for performing actuation of automatic call origination to a central control unit 108, when there are a reproducing unit 102 thru/or various reports from 106. The line control section 203 is for performing actuation of change control of whether a communication line 109 is connected to the reproducing-unit group 101 side, or to connect with the common telephone 204 side. The auto dialler section 202 and the line control section 203 perform each actuation by control of a control section 201.
[0027] un-volatilizing [which drawing 3 is the block diagram showing the configuration of a control section 201, and was backed up by CPU301 which performs control when a control section 201 reads the control ROM 302 and Control ROM 302 which stored the control program, RAM303 which carries out the temporary storage of the data, and the cell which does not illustrate / RAM / 304], and a time check -- it consists of a unit 305, a serial-communication control unit 306, input/output port 307, and interface 308 grade, and it is connected by the bus 309, respectively. Moreover, a bus 309 consists of an address bus, a data bus, and a control bus.
[0028] The device code corresponding to each reproducing unit for specifying one of a central control unit 108, the reproducing unit 102 in the transfer data transmitted to another side from either of the reproducing-unit groups 101, and the reproducing-unit group 101, or 106 sets as un-volatilizing [RAM / 304], The count of a recurrence call, recurrence call spacing, etc. when a line connection is not successful with the telephone number of the central control unit 108 for the auto dialler section 202 to carry out automatic call origination and the automatic call origination of the auto dialler section 202 are memorized.
[0029] A data communication unit 107 has the control which reads a reproducing unit 102 thru/or each total counter value of 106 by such configuration as typical control performed by a data communication unit 107 being original although various control is performed. Selecting performs this control at the time of day beforehand set over 1 time per or multiple times day from the data communication unit 107. By this control, a data communication unit 107 can always hold the newest total counter value. Therefore, a central control unit 108 can acquire the above-mentioned total counter value from a data communication unit 107 at any time, though the

reproducing unit 102 thru/or the power source of 106 serve as OFF.
[0030] (Control configuration of a reproducing unit) the block diagram in which drawing 4 shows a reproducing unit 102 thru/or the control configuration of 106 (it represents and only 102 is shown.) -- it is -- drawing -- setting -- a reproducing unit 102 thru/or the control configuration of 106 -- CPU401, ROM402 and RAM403, un-volatilizing [RAM / 404] and input/output port 405, and a time check -- it consists of a unit 406, a serial communication control unit 407, and an interface 408 between data communication units 107. Moreover, a bus 409 is for connecting each configuration section 401 thru/or 408, and consists of buses, such as an address bus, a data bus, and a control bus.
[0031] Input/output port 405 is connected so that input signals, such as a signal detected by the signal about output loads, such as a reproducing unit 102 thru/or a motor solenoid clutch inside 106, two or more sensors for supervising the jam of a copying paper, etc., may be inputted. a time check -- also while the reproducing unit 102 thru/or the power source of 106 are turned off, the unit 406 is backed up by the cell which is not illustrated so that it can clock correctly. CPU401 -- a time check -- current time can be read from a unit 406 at any time.
[0032] The serial communication control unit 407 is delivering and receiving the signal with a reproducing unit 102 thru/or an actuation display, the manuscript delivery section, the transfer paper after-treatment section in 106 which is not illustrated, etc. An interface 408 is established in order to mitigate the load which performs the communications processing of CPU401. Therefore, if the throughput of CPU401 is enough, the function of an interface 408 can also be incorporated to CPU401. The DIP switch which is not illustrated in an interface 408 can perform a setup of the above-mentioned device code. An interface 408 has the function to perform the reception of the acknowledge or the negative acknowledge from the polling from a data communication unit 107 and monitor processing of selecting, a reproducing unit 102, or 106, the justification check of the transmitted and received data between data communication units 107, a parity check and resending claim processing at the time of error generating, header processing of the transmitted and received data between data communication units 107, etc., respectively.
[0033] (Actuation of selecting) Next, drawing 5 carries out flow chart reference, and actuation of selecting is explained. Selecting is one set which chose and chose one specific set from two or more reproducing units 102 connected to the data communication unit 107 thru/or 106, and the function to perform a communication link. A reproducing unit 102 thru/or 106 have held beforehand the device code peculiar to each reproducing unit, respectively. The device code of a desired reproducing unit is continuously sent out to serial communication RS-485 after that with the combination of the specific code which shows that a data communication unit 107 is a selecting function and which was defined beforehand, or a specific code (S501).
[0034] In each reproducing-unit 102 thru/or 106 side, it compares with the device code which the device code which continues after that, a reproducing unit 102, or 106 holds by receiving the combination of the specific code which shows the above-mentioned selecting function, or a specific code from serial communication RS-485. The reproducing unit 102 (here) which was in agreement when both the device code was in agreement the case where selecting of the reproducing unit 102 is carried out is assumed. The received specific code Or judge whether it is possible to deal with the SERETINGU function concerning the combination of a specific code, and when it can respond, when it cannot respond, serial communication RS-485 are minded [acknowledge] for a negative acknowledge with the combination of a specific code or a specific code, respectively. It transmits to a data communication unit 107.
[0035] A data communication unit 107 waits for reception of the acknowledge from a

reproducing unit 102 (S502). Here, when acknowledge is received, a communication link is performed (S503), and it waits for communicative termination (S504), and selecting is ended.

[0036] In the above-mentioned step S502, when a data communication unit 107 does not receive the acknowledge from a reproducing unit 102, it waits for reception of the negative acknowledge from a reproducing unit 102 (S505), and selecting is ended. Selecting is ended, after only the predetermined time defined beforehand waits for acknowledge or a negative acknowledge (S506) and this predetermined time passes, when receiving neither acknowledge nor a negative acknowledge from a reproducing unit 102.

[0037] (Actuation of polling) Next, drawing 6 carries out flow chart reference, and actuation of polling is explained. Polling is the function to carry out sequential assignment for two or more reproducing units 102 connected to the data communication unit 107 thru/or 106 in predetermined sequence, and to check the existence of a reproducing unit 102 thru/or the connection request from 106. A reproducing unit 102 thru/or 106 have held beforehand the device code peculiar to each reproducing unit, respectively. The device code of the combination of the specific code which shows that a data communication unit 107 is the polling function defined beforehand, or a specific code, and the reproducing unit of 1 which continues after that, or two or more requests is sent out to the reproducing unit 102 by which polling is made by the beginning among the reproducing-unit groups 101 through serial communication RS-485 (S601).

[0038] A reproducing unit 102 compares the device code which the device code which continues after that, a reproducing unit 102, or 106 holds by receiving the combination of the specific code which shows the above-mentioned polling function, or a specific code from serial communication RS-485. After checking that both the device code is in agreement, a reproducing unit 102 starts a communication link through a data communication unit 107 and serial communication RS-485, when there is a report demand to a data communication unit 107 or a central control unit 108, and sends out data. A communication link is ended by transmitting the response of the communication link termination by the combination of the specific code which continued and was beforehand set to termination of data forwarding, or a specific code to a data communication unit 107. When there is no report demand to a data communication unit 107 and a central control unit 108, a data communication unit 107 transmits a termination response to a data communication unit 107.

[0039] A data communication unit 107 waits for reception of the data sent out from the reproducing unit 102 (S602). Here, a data communication unit 107 judges whether the sending-out data is a termination response, when there is reception of sending-out data (S603). Here, if sending-out data are a termination response, a data communication unit 107 will end the polling about a reproducing unit 102.

[0040] In the above-mentioned step S603, if sending-out data are not termination data, it will wait for the communication link termination by the response of the communication link termination from a reproducing unit 102 (S604), and a data communication unit 107 will end the polling about a reproducing unit 102.

[0041] In the above-mentioned step S602, when the data sent out from a reproducing unit 102 are not received, a data communication unit 107 ends the polling about a reproducing unit 102, after it waits only for the predetermined time defined beforehand (S605) and this predetermined time passes. Since the power source of the reproducing unit 102 which the data communication unit 107 is not connected [******] to the reproducing unit corresponding to a device code, or corresponds is off when sending out of data is not carried out from a reproducing unit 102, the case of being unable to send out data can be considered.

[0042] After the polling about a reproducing unit 102 is completed, a data communication unit 107 performs polling processing performed about the reproducing unit 102, and same processing about a reproducing unit 103 (S606). After polling is completed about a reproducing unit 103, polling is performed in order of a reproducing unit 104, a reproducing unit 105, and a reproducing unit 106. Thus, unless selecting mentioned above occurs on the way, sequential execution of the data communication unit 107 can be carried out to the reproducing-unit group 101 connected, and it can receive the report demand from all reproducing units.

[0043] (Control action of the reproducing unit concerning an example 1) Next, drawing 7 carries out flow chart reference, and the control action of the reproducing unit concerning an example 1 is explained. In addition, control action shown in a flow chart is repeatedly performed for every time interval defined beforehand, as long as the power source of a reproducing unit 102 is turned on. Moreover, only actuation of the expedient top of explanation and a reproducing unit 102 is explained, and the explanation is omitted about a reproducing unit 103 thru/or actuation of 106. Naturally, the same actuation is made also in a reproducing unit 103 thru/or 106.

[0044] In a reproducing unit 102, it supervises whether it is in the condition which the jam of a copying paper generated (S701). Here, when it is in the condition which the jam of a copying paper generated, the completion flag FA of a report is investigated (S702). This completion flag FA of a report is a flag for a reproducing unit 102 not to carry out the multiple-times report of the condition of the same jam generating to a data communication unit 107 between them, when the condition of jam generating of a copying paper is continuing. Here, when the completion flag FA of a report is off, it judges whether the timer A for jam house keeping of a copying paper (henceforth "Timer A") exceeded the predetermined time defined beforehand (S703). another flow chart which does not illustrate Timer A -- the time check of the generating condition of the jam of a copying paper -- it controls. When Timer A exceeds predetermined time, it waits for the polling from a data communication unit 107 (S704), and the report about the generating condition of the jam of the above-mentioned copying paper is transmitted to a data communication unit 107 (S705). After the transmission which starts a report from a reproducing unit 102 is completed, the completion flag FA of a report turned off in the above-mentioned step S702 is turned on (S706). It means that the report to a data communication unit 107 was already completed about the jam of the copying paper generated this time by this. Then, it ends about this control action.

[0045] In the above-mentioned step S703, when Timer A is not over predetermined time, it ends about this control action, without doing anything. Moreover, in the above-mentioned step S702, since having completed the report to a data communication unit 107 is already shown in the case of the last control action when the completion flag FA of a report is ON, it ends about this control action. This condition is continued until the condition of the jam of a copying paper is canceled and the completion flag FA of a report is turned off, as shown below.

[0046] In the above-mentioned step S701, the case of being as follows is assumed about the case where it is not in the condition which the jam of a copying paper generated.

(1) It is the case where generating of the jam of a copying paper is not succeedingly detected from the last control action. In this case, the completion flag FA of a report is still off.

(2) When generating of the jam of a copying paper is detected in the control action before last time and the report to a data communication unit 107 is not yet completed, it is the case where Timer A is not over predetermined time. Also in this case, the completion flag FA of a report is still off.

(3) Generating of the jam of a copying paper is detected in the control action before last time,

and it is already the case where the report to a data communication unit 107 is completed. In this case, the completion flag FA of a report serves as ON by actuation of the above-mentioned step S706. Even if it is which case, when it is not in the condition which the jam of a copying paper generated, the completion flag FA of a report is always cleared (S707). Then, Timer A is reset (S708) and it ends about this control action.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the block diagram showing the configuration of the whole reproducing-unit managerial system concerning an example 1.
[Drawing 2] It is the block diagram showing the configuration of the data communication unit in the reproducing-unit managerial system concerning an example 1.
[Drawing 3] It is the block diagram showing the configuration of the control section in a data communication unit.
[Drawing 4] It is the block diagram showing the control configuration of the reproducing unit in the reproducing-unit managerial system concerning an example 1.
[Drawing 5] It is the flow chart which shows actuation of selecting in the reproducing-unit managerial system to apply example 1.
[Drawing 6] It is the flow chart which shows actuation of the polling in the reproducing-unit managerial system concerning the invention in this application.
[Drawing 7] It is the flow chart which shows the control action of the reproducing unit concerning an example 1.
[Drawing 8] It is the flow chart which shows the control action of the reproducing unit concerning an example 2.
[Drawing 9] It is the flow chart which shows the control action of the reproducing unit concerning an example 3.
[Drawing 10] It is the flow chart which shows the control action of the reproducing unit concerning an example 4.
[Drawing 11] It is the flow chart which shows the control action of the reproducing unit concerning an example 5.
[Description of Notations]
101 Reproducing-Unit Group
102 103,104,105,106 Reproducing unit
107 Data Communication Unit
108 Central Control Unit
109 Communication Line
201 Control Section
202 Auto Dialler Section
203 Line Control Section
301 CPU
302 Control ROM
303 RAM
304 Un-Volatilizing [RAM].
305 Time Check -- Unit

306 Serial Communication Control Unit
307 Input/output Port
308 Interface
309 Bus
401 CPU
402 ROM
403 RAM
404 Un-Volatilizing [RAM].
405 Input/output Port
406 Time-Check---Unit
407 Serial-Communication-Control-Unit
408 Interface
409 Bus

COPYING DEVICE CONTROL SYSTEM
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EC Classification:
Equivalents:

Abstract

PROBLEM TO BE SOLVED: To provide efficient and speedy service by sending various kinds of information from copying devices to a CPU and various kinds of commands from the CPU to the copying devices. SOLUTION: This system is constituted of plural copying devices 102-106, a data communication device 107 to which the plural copying devices 102-106 are connected and the CPU 108 connected to the data communication device 107 with a communication channel 109. When time to continue a state for making a copying operation is impossible or a generation frequency exceeds a fixed time or frequency previously set, the state is communicated to the CPU 108 with the data communication device 107, as a communication factor.

[0044] In the copying device 102, it is monitored whether it is in such a status that jam of copying papers occurred (S701). Here, in case of the status that jam of copying papers occurred, a report completion flag FA is investigated (S702). This report completion flag FA is a flag for preventing, in case that the status of jam occurrence of copying papers continues, the copying device 102 from reporting a status of identical jam occurrence to the data communication device 107 at a plurality of times during that period. Here, in case that the report completion flag is OFF, it is judged whether or not a timer A for monitoring a jam status of copying papers (hereinafter, referred to as "timer A") exceeds predetermined time which was determined in advance (S703). The timer A carries out time control of an occurrence status of jam of copying papers by another flow chart which is not shown in the figure. In case that the timer A exceeds the predetermined time, it waits for polling from the data communication device 107 (S704), and transmits the a report regarding the above-described occurrence state of jam of copying papers to the data communication device 107 (S705). After the transmission relating to the report from the copying device 102 was finished, the report completion flag FA which was OFF in the step S702 is turned ON (S706). By this, as to the jam of copying papers which occurred this time, the report to the data

communication device 107 is to have been already completed. After that, a control operation this time is finished.

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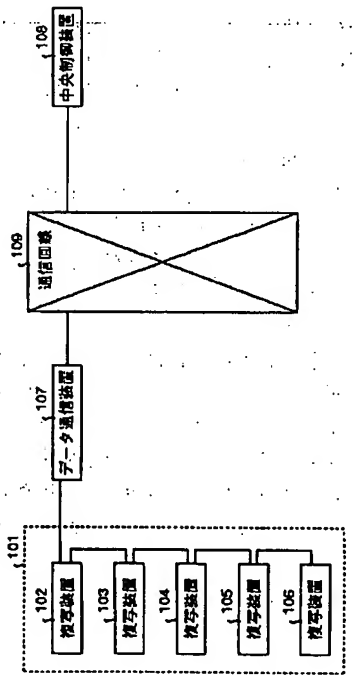
(54)【発明の名称】　複写装置管理システム

(57)【要約】

【課題】　複写装置から中央制御装置への各種通報の送信および中央制御装置から複写装置への各種指令の送信を実現し，効率的かつ迅速なサービスの提供を図る。

【解決手段】　複数の複写装置１０２乃至１０６と，複数の複写装置１０２乃至１０６が接続されたデータ通信装置１０７と，データ通信装置１０７と通信回線１０９を介して接続された中央制御装置１０８とから構成され，複写動作を不可能とする状態が継続する時間あるいは発生回数があらかじめ定められた一定時間あるいは一定回数を超える場合にその状態を通報要因としてデータ通信装置１０９を介して中央制御装置１０８へ通報する。



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【特許請求の範囲】

【請求項１】　複数の複写装置と，前記複数の複写装置に接続され，前記複数の複写装置の状態を監視するデータ通信装置と，前記データ通信装置に通信回線を介して接続された中央制御装置とから構成され，前記複数の複写装置の複写動作を不可能とする状態を前記データ通信装置を用いて前記中央制御装置へ通報する複写装置管理システムにおいて，前記複数の複写装置が，前記複写動作を不可能とする状態を検知する検知手段と，前記検知手段により検知された状態が継続する時間を計時する計時手段と，前記計時手段により計時した時間があらかじめ定められた時間を超える場合に前記状態を通報要因として前記データ通信装置へ通報することを決定する通報要因決定手段とを備えたことを特徴とする複写装置管理システム。

【請求項２】　請求項１記載の複写装置管理システムにおいて，前記複写動作を不可能とする状態が複写用紙のジャムであることを特徴とする複写装置管理システム。

【請求項３】　請求項１記載の複写装置管理システムにおいて，前記複写動作を不可能とする状態が前記複写装置のドアーの開放であることを特徴とする複写装置管理システム。

【請求項４】　請求項１記載の複写装置管理システムにおいて，前記複写動作を不可能とする状態が前記複写装置に備えられた原稿自動送り装置における原稿のジャムであることを特徴とする複写装置管理システム。

【請求項５】　複数の複写装置と，前記複数の複写装置が接続され，前記複数の複写装置の状態を監視するデータ通信装置と，前記データ通信装置と通信回線を介して接続された中央制御装置とから構成され，前記複数の複写装置の複写動作を不可能とする状態を前記データ通信装置を用いて前記中央制御装置へ通報する複写装置管理システムにおいて，前記複数の複写装置が，前記複写動作を不可能とする状態を検知する検知手段と，前記検知手段により検知された状態が連続して発生する回数を計数する計数手段と，前記計数手段により計数した回数があらかじめ定められた回数を超える場合に前記状態を通報要因として前記データ通信装置へ通報することを決定する通報要因決定手段とを備えたことを特徴とする複写装置管理システム。

【請求項６】　請求項５記載の複写装置管理システムにおいて，前記複写動作を不可能とする状態が複写用紙のジャムであることを特徴とする複写装置管理システム。

【請求項７】　請求項５記載の複写装置管理システムにおいて，前記複写動作を不可能とする状態が前記複写装置に備えられた原稿自動送り装置における原稿のジャムであることを特徴とする複写装置管理システム。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は，複写装置管理システムに関し，特に，複数の複写装置における複写動作を不可能とする状態をデータ通信装置を用いて前記中央制御装置へ通報する複写装置管理システムに関する。

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【０００２】

【従来の技術】従来における複写装置管理システムにあっては，複写装置に想定した状態・条件が発生したときは自動的に外部装置（中央制御装置）にデータ送信するものである（例えば，特開平２－２５９６６３号公報記載の「画像形成装置の情報収集システム」，特開平３－２２６７６９号公報記載の「画像形成装置管理システム」，特開平４－１７４５７号公報記載の「複写装置」，特開平４－３１８８６４号公報記載の「複写装置」，特開平４－３１８８６７号公報記載の「複写装置」，特開平３－６６２７９号公報記載の「複写装置」）。

【０００３】

【発明が解決しようとする課題】しかしながら，上記従来の複写装置管理システムによれば，その複写装置を監視し，監視した結果を送信するための装置が複写装置の台数と同一台数だけ必要であり，システム全体のコストが増加するという問題点があった。一方，複数の複写装置を同時に監視する際，散発的な複写動作を不可能とする状態が発生した場合に，その都度データ情報装置へ通報したのでは，監視する複写装置の総数によってはデータ通信装置の処理に限界を来たし，複写装置全体に対し充分な監視および中央制御装置への通報処理が実現できないという問題点があった。

【０００４】この発明は上記鑑みてなされたものであって，顧客に設置された複数の複写装置と販売あるいはサービスの拠点等に設置された中央制御装置との間にデータ通信装置を設置して，データ通信装置が複数の複写装置の監視を行い，また，各複写装置は所定時間あるいは所定回数が経過した状態のみを通報することにより，複写装置から中央制御装置への各種通報の送信および中央制御装置から複写装置への各種指令の送信を実現し，効率的かつ迅速なサービスの提供を図ることを目的とする。

【０００５】

【課題を解決するための手段】上記の目的を達成するために，請求項１に係る複写装置管理システムは，複数の複写装置と，前記複数の複写装置に接続され，前記複数の複写装置の状態を監視するデータ通信装置と，前記データ通信装置に通信回線を介して接続された中央制御装置とから構成され，前記複数の複写装置の複写動作を不可能とする状態を前記データ通信装置を用いて前記中央制御装置へ通報する複写装置管理システムにおいて，前記複数の複写装置が，前記複写動作を不可能とする状態を検知する検知手段と，前記検知手段により検知された状態が継続する時間を計時する計時手段と，前記計時手段により計時した時間があらかじめ定められた時間を超

える場合に前記状態を通報要因として前記データ通信装置へ通報することを決定する通報要因決定手段とを備えたものである。

【０００６】また，請求項２に係る複写装置管理システムは，前記複写動作を不可能とする状態が複写用紙のジャムである。

【０００７】また，請求項３に係る複写装置管理システムは，前記複写動作を不可能とする状態が前記複写装置のドアーの開放である。

【０００８】また，請求項４に係る複写装置管理システムは，前記複写動作を不可能とする状態が前記複写装置に備えられた原稿自動送り装置における原稿のジャムである。

【０００９】また，請求項５に係る複写装置管理システムは，複数の複写装置と，前記複数の複写装置が接続され，前記複数の複写装置の状態を監視するデータ通信装置と，前記データ通信装置と通信回線を介して接続された中央制御装置とから構成され，前記複数の複写装置の複写動作を不可能とする状態を前記データ通信装置を用いて前記中央制御装置へ通報する複写装置管理システムにおいて，前記複数の複写装置が，前記複写動作を不可能とする状態を検知する検知手段と，前記検知手段により検知された状態が連続して発生する回数を計数する計数手段と，前記計数手段により計数した回数があらかじめ定められた回数を超える場合に前記状態を通報要因として前記データ通信装置へ通報することを決定する通報要因決定手段とを備えたものである。

【００１０】また，請求項６に係る複写装置管理システムは，前記複写動作を不可能とする状態が複写用紙のジャムである。

【００１１】また，請求項７に係る複写装置管理システムは，前記複写動作を不可能とする状態が前記複写装置に備えられた原稿自動送り装置における原稿のジャムである。

【００１２】

【作用】本発明の複写装置管理システムでは，複数の複写装置が，複写動作を不可能とする状態を検知し，検知された状態が継続する時間を計時し，計時した時間があらかじめ定められた時間を超える場合にその状態を通報要因としてデータ通信装置へ通報することを決定する。

【００１３】また，請求項２に係る複写装置管理システムは，複写動作を不可能とする状態を複写用紙のジャムとすることにより，複数の複写装置が，複写用紙のジャムを検知し，検知された複写用紙のジャムが継続する時間を計時し，計時した時間があらかじめ定められた時間を超える場合に複写用紙のジャムを通報要因としてデータ通信装置へ通報することを決定する。

【００１４】また，請求項３に係る複写装置管理システムは，複写動作を不可能とする状態を複写装置のドアーの開放とすることにより，複数の複写装置が，複写装置のドアーの開放を検知し，検知された複写装置のドアーの開放が継続する時間を計時し，計時した時間があらかじめ定められた時間を超える場合に複写装置のドアーの開放を通報要因としてデータ通信装置へ通報することを決定する。

【００１５】また，請求項４に係る複写装置管理システムは，複写動作を不可能とする状態を複写装置に備えられた原稿自動送り装置における原稿のジャムとすることにより，複数の複写装置が，原稿のジャムを検知し，検知された原稿のジャムが継続する時間を計時し，計時した時間があらかじめ定められた時間を超える場合に原稿のジャムを通報要因としてデータ通信装置へ通報することを決定する。

【００１６】また，請求項５に係る複写装置管理システムは，複数の複写装置が，複写動作を不可能とする状態を検知し，検知された状態が連続して発生する回数を計数し，計数した回数があらかじめ定められた回数を超える場合にその状態を通報要因としてデータ通信装置へ通報することを決定する。

【００１７】また，請求項６に係る複写装置管理システムは，複写動作を不可能とする状態を複写用紙のジャムとすることにより，複数の複写装置が，複写用紙のジャムを検知し，検知された複写用紙のジャムが連続して発生する回数を計数し，計数した回数があらかじめ定められた回数を超える場合にその複写用紙のジャムを通報要因としてデータ通信装置へ通報することを決定する。

【００１８】また，請求項７に係る複写装置管理システムは，複写動作を不可能とする状態を複写装置に備えられた原稿自動送り装置における原稿のジャムとすることにより，複数の複写装置が，原稿のジャムを検知し，検知された原稿のジャムが連続して発生する回数を計数し，計数した回数があらかじめ定められた回数を超える場合にその原稿のジャムを通報要因としてデータ通信装置へ通報することを決定する。

【００１９】

【発明の実施の形態】以下，この発明に係る複写装置管理システムの一実施例について，〔実施例１〕，〔実施例２〕，〔実施例３〕，〔実施例４〕，〔実施例５〕の順で図面を参照して詳細に説明する。

【００２０】〔実施例１〕

（実施例１に係る複写装置管理システムの構成）図１は，実施例１に係る複写装置管理システムの全体の構成を示すブロック図である。図において，複写装置管理システムは，複数の複写装置１０２，１０３，１０４，１０５，１０６から構成される複写装置群１０１と，複写装置群１０１に接続されたデータ通信装置１０７と，中央制御装置１０８と，データ通信装置１０７と中央制御装置１０８が接続されている通信回線１０９とからなる。

【００２１】データ通信装置１０７は，通信回線１０９

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を経由して中央制御装置１０８と接続され，中央制御装置１０８から送られる指令，例えば，複写装置１０２乃至１０６の特性値を読み込むことに関する指令や，複写装置１０２乃至１０６の設定値を変更することに関する指令を複写装置１０２乃至１０６へ転送する。また一方，データ通信装置１０７は，複写装置１０２乃至１０６から送られる各種の通報情報を通信回線１０９を経由して中央制御装置１０８へ転送する。

【００２２】また，データ通信装置１０７は，２４時間通電を行っており，通常，複写装置１０２乃至１０６の電源がオフされている夜間であっても中央制御装置１０８との間で通信をすることができる構成となっている。

【００２３】さらに，データ通信装置１０７と複写装置１０２乃至１０６とは，シリアル通信ＲＳ－４８５によってマルチ・ドロップ接続されており，データ通信装置１０７からのセレクティングあるいはポーリング等の通信機能により複数の複写装置１０２乃至１０６との通信を実行する。なお，セレクティングおよびポーリングの機能の内容については後述する。

【００２４】このように，本実施例に係る複写装置管理システムは，１台あるいは複数の複写装置からなる複写装置群１０１に対し，１台のデータ通信装置１０７が接続されるようなシステム構成をとっている。

【００２５】（データ通信装置の構成）図２は，データ通信装置１０７の構成を示すブロック図であり，図において，データ通信装置は，制御部２０１と，オートダイアラ部２０２と，回線制御部２０３とからなる。制御部２０１は，オートダイアラ部２０２と回線制御部２０３とに接続されて，また，複写装置１０２乃至１０６と接続されており，複写装置１０２乃至１０６の各種制御および中央制御装置１０８からの指令受信を含む通信制御を実行するためのものである。

【００２６】オートダイアラ部２０２は，複写装置１０２乃至１０６からの各種通報があった場合等に中央制御装置１０８に対して自動発呼の動作を実行するためのものである。回線制御部２０３は，通信回線１０９を複写装置群１０１側へ接続するか，あるいは，一般の電話機２０４側へ接続するかの切り替え制御の動作を実行するためのものである。オートダイアラ部２０２および回線制御部２０３は，制御部２０１の制御により，それぞれの動作を実行する。

【００２７】図３は，制御部２０１の構成を示すブロック図であり，制御部２０１は，制御プログラムを格納した制御ＲＯＭ３０２と，制御ＲＯＭ３０２を読み込むことにより制御を実行するＣＰＵ３０１と，データを一時格納するＲＡＭ３０３と，図示しない電池によりバックアップされた不揮発ＲＡＭ３０４と，計時ユニット３０５と，シリアル通信制御ユニット３０６と，入出力ポート３０７と，インターフェイス３０８等とからなり，それぞれ，バス３０９により接続されている。また，バス

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３０９は，アドレス・バスと，データ・バスと，コントロール・バスとからなる。

【００２８】不揮発ＲＡＭ３０４には，中央制御装置１０８と複写装置群１０１のいずれか一方から他方へ転送する転送データ，複写装置群１０１の中の複写装置１０２乃至１０６のうちの１台を特定するためのそれぞれの複写装置に対応するディバイス・コード，オートダイアラ部２０２が自動発呼するための中央制御装置１０８の電話番号，オートダイアラ部２０２の自動発呼により回線接続が成功しなかった場合の再発呼回数・再発呼間隔等が記憶されている。

【００２９】データ通信装置１０７は，このような構成により，様々な制御を実行するが，データ通信装置１０７が独自で実行する代表的制御として，複写装置１０２乃至１０６のそれぞれのトータル・カウンター値の読み取りをおこなう制御がある。この制御は，データ通信装置１０７から１日１回あるいは複数回にわたりあらかじめ定められた時刻にセレクティングによりおこなう。この制御により，データ通信装置１０７は常に最新のトータル・カウンター値を保有することができる。したがって，中央制御装置１０８は，複写装置１０２乃至１０６の電源がオフとなっていたとしても，何時でも上記トータル・カウンター値をデータ通信装置１０７から取得することができる。

【００３０】（複写装置の制御構成）図４は，複写装置１０２乃至１０６（代表して１０２のみ示す。）の制御構成を示すブロック図であり，図において，複写装置１０２乃至１０６の制御構成は，ＣＰＵ４０１と，ＲＯＭ４０２と，ＲＡＭ４０３と，不揮発ＲＡＭ４０４と，入出力ポート４０５と，計時ユニット４０６と，シリアル通信制御ユニット４０７と，データ通信装置１０７との間のインターフェイス４０８とからなる。また，バス４０９は，それぞれの構成部４０１乃至４０８を接続するためのものであり，アドレス・バス，データ・バス，コントロール・バス等のバスからなる。

【００３１】入出力ポート４０５は，複写装置１０２乃至１０６の内部のモーター・ソレノイド・クラッチ等の出力負荷に関する信号や，例えば複写用紙のジャムを監視するための複数のセンサー等により検知された信号等の入力信号が入力されるように接続されている。計時ユニット４０６は，複写装置１０２乃至１０６の電源がオフされている間も正確に計時できるように，図示しない電池によりバックアップされている。ＣＰＵ４０１は計時ユニット４０６からいつでも現在時刻を読み出すことができる。

【００３２】シリアル通信制御ユニット４０７は，複写装置１０２乃至１０６における図示しない操作表示部・原稿送り部・転写紙後処理部等との信号の授受をおこなっている。インターフェイス４０８は，ＣＰＵ４０１の通信処理を実行する負荷を軽減するために設けられたも

のである。したがって，ＣＰＵ４０１の処理能力が十分であれば，インターフェイス４０８の機能をＣＰＵ４０１に取り込むこともできる。上記ディバイス・コードの設定はインターフェイス４０８の中の図示しないディップ・スイッチによりおこなうことができる。インターフェイス４０８は，データ通信装置１０７からのポーリングおよびセレクティングの監視処理，複写装置１０２乃至１０６からの肯定応答あるいは否定応答の受信処理，データ通信装置１０７との間の送受信データの正当性チェック，パリティーチェックおよびエラー発生時の再送請求処理，データ通信装置１０７との間の送受信データのヘッダー処理等をそれぞれおこなう機能を有するものである。

【００３３】（セレクティングの動作）次に，図５のフローチャート参照して，セレクティングの動作について説明する。セレクティングとは，データ通信装置１０７に接続されている複数の複写装置１０２乃至１０６から特定の１台を選択し，選択した１台と通信をおこなう機能である。複写装置１０２乃至１０６は，それぞれ各複写装置特有のディバイス・コードをあらかじめ保持している。データ通信装置１０７は，セレクティング機能であることを示すあらかじめ定められた特定コードあるいは特定コードの組み合わせと，その後に続けて所望の複写装置のディバイス・コードとをシリアル通信ＲＳ－４８５へ送出する（Ｓ５０１）。

【００３４】各複写装置１０２乃至１０６側では，上記セレクティング機能を示す特定コードあるいは特定コードの組み合わせをシリアル通信ＲＳ－４８５から受信することにより，その後に続くディバイス・コードと複写装置１０２乃至１０６が保持しているディバイス・コードと比較する。両ディバイス・コードが一致していれば，一致した複写装置１０２（ここでは，複写装置１０２がセレクティングされた場合を想定する。）は，受信した特定コードあるいは特定コードの組み合わせにかかるセレティング機能に対応することが可能か否かを判断し，対応可能の場合は肯定応答を，対応不可能な場合は否定応答を，それぞれ特定コードあるいは特定コードの組み合わせにより，シリアル通信ＲＳ－４８５を介してデータ通信装置１０７へ送信する。

【００３５】データ通信装置１０７は，複写装置１０２からの肯定応答の受信を待つ（Ｓ５０２）。ここで，肯定応答を受信した場合は通信を実行し（Ｓ５０３），通信の終了を待って（Ｓ５０４），セレクティングを終了する。

【００３６】上記ステップＳ５０２において，データ通信装置１０７が複写装置１０２からの肯定応答を受信しない場合は，複写装置１０２からの否定応答の受信を待って（Ｓ５０５），セレクティングを終了する。複写装置１０２から肯定応答も否定応答も受信しない場合は，あらかじめ定められた所定時間だけ肯定応答あるいは否定応答を待って（Ｓ５０６），該所定時間が経過した後，セレクティングを終了する。

【００３７】（ポーリングの動作）次に，図６のフローチャート参照して，ポーリングの動作について説明する。ポーリングとは，データ通信装置１０７に接続されている複数の複写装置１０２乃至１０６を所定の順番で順次指定をして，複写装置１０２乃至１０６からの接続要求の有無を確認する機能である。複写装置１０２乃至１０６は，それぞれ各複写装置特有のディバイス・コードをあらかじめ保持している。データ通信装置１０７は，あらかじめ定められたポーリング機能であることを示す特定コードあるいは特定コードの組み合わせと，その後に続く１または複数の所望の複写装置のディバイス・コードをシリアル通信ＲＳ－４８５を介して複写装置群１０１の内，最初にポーリングがなされる複写装置１０２へ送出する（Ｓ６０１）。

【００３８】複写装置１０２は，上記ポーリング機能を示す特定コードあるいは特定コードの組み合わせをシリアル通信ＲＳ－４８５から受信することにより，その後に続くディバイス・コードと複写装置１０２乃至１０６が保持しているディバイス・コードとを比較する。両ディバイス・コードが一致していることを確認した後，複写装置１０２は，データ通信装置１０７あるいは中央制御装置１０８に対して通報要求がある場合はデータ通信装置１０７とシリアル通信ＲＳ－４８５を介して通信を開始し，データを送出する。データ送出の終了に引き続きあらかじめ定められた特定コードあるいは特定コードの組み合わせによる通信終了の応答をデータ通信装置１０７に送信することにより通信を終了する。データ通信装置１０７および中央制御装置１０８に対して通報要求がない場合は，データ通信装置１０７は終了応答をデータ通信装置１０７へ送信する。

【００３９】データ通信装置１０７は，複写装置１０２から送出されたデータの受信を待つ（Ｓ６０２）。ここで，データ通信装置１０７は，送出データの受信があった場合に，その送出データが終了応答であるかどうかを判断する（Ｓ６０３）。ここで，送出データが終了応答であれば，データ通信装置１０７は複写装置１０２についてのポーリングを終了する。

【００４０】上記ステップＳ６０３において，送出データが終了データでなければ，複写装置１０２からの通信終了の応答による通信終了を待って（Ｓ６０４），データ通信装置１０７は複写装置１０２についてのポーリングを終了する。

【００４１】上記ステップＳ６０２において，複写装置１０２から送出されるデータを受信しなかった場合は，データ通信装置１０７は，あらかじめ定められた所定時間だけ待って（Ｓ６０５），該所定時間が経過した後，複写装置１０２についてのポーリングを終了する。複写装置１０２からデータの送出がされない場合としては，

データ通信装置１０７がディバイス・コードに対応する複写装置に接続されていない，あるいは，該当する複写装置１０２の電源がオフとなっているためデータを送出できない等の場合が考えられる。

【００４２】複写装置１０２についてのポーリングが終了すると，データ通信装置１０７は，複写装置１０２についておこなったポーリング処理と同様の処理を複写装置１０３について実行する（Ｓ６０６）。複写装置１０３についてポーリングが終了した後，複写装置１０４，複写装置１０５，複写装置１０６の順序でポーリングを実行する。このように，データ通信装置１０７は，前述したセレクティングが途中で発生しない限り，接続されている複写装置群１０１に対して順次実行し，全ての複写装置からの通報要求を受信することができる。

【００４３】（実施例１に係る複写装置の制御動作）次に，図７のフローチャート参照して，実施例１に係る複写装置の制御動作を説明する。なお，フローチャートに示す制御動作は，複写装置１０２の電源がオンされている限り，あらかじめ定められた時間間隔ごとに繰り返し実行される。また，説明の便宜上，複写装置１０２の動作のみを説明し，複写装置１０３乃至１０６の動作についてはその説明を省略する。当然，複写装置１０３乃至１０６においても同様の動作がなされている。

【００４４】複写装置１０２において，複写用紙のジャムが発生した状態であるかを監視する（Ｓ７０１）。ここで，複写用紙のジャムが発生した状態である場合は，通報完了フラグＦＡを調べる（Ｓ７０２）。この通報完了フラグＦＡは，複写用紙のジャム発生の状態が継続している場合に，その間に複写装置１０２がデータ通信装置１０７へ同一のジャム発生の状態を複数回通報しないようにするためのフラグである。ここで，通報完了フラグＦＡがオフである場合は，複写用紙のジャム状態監視用タイマーＡ（以下，「タイマーＡ」という。）があらかじめ定めた所定時間を超過したか否かを判断する（Ｓ７０３）。タイマーＡは，図示しない別のフローチャートにより複写用紙のジャムの発生状態の計時制御をする。タイマーＡが所定時間を超過した場合は，データ通信装置１０７からのポーリングを待って（Ｓ７０４），上記複写用紙のジャムの発生状態に関する通報をデータ通信装置１０７へ送信する（Ｓ７０５）。複写装置１０２からの通報にかかる送信が終了した後，上記ステップＳ７０２においてオフした通報完了フラグＦＡをオンする（Ｓ７０６）。これにより，今回発生した複写用紙のジャムについてはデータ通信装置１０７への通報が既に完了したこととなる。その後，今回の制御動作については終了する。

【００４５】上記ステップＳ７０３において，タイマーＡが所定時間を超過していない場合は，今回の制御動作については何もせずに終了する。また，上記ステップＳ７０２において，通報完了フラグＦＡがオンである場合は，前回の制御動作の際，既にデータ通信装置１０７への通報は完了していることを示しているので，今回の制御動作については終了する。下記に示すように，複写用紙のジャムの状態が解除されて，通報完了フラグＦＡがオフされるまでは，この状態を継続する。

【００４６】上記ステップＳ７０１において，複写用紙のジャムが発生した状態でない場合については，次のような場合が想定される。

（１）　前回の制御動作から引き続き複写用紙のジャムの発生が検知されていない場合である。この場合は通報完了フラグＦＡはオフのままである。

（２）　前回以前の制御動作では複写用紙のジャムの発生が検知されており，いまだ，データ通信装置１０７への通報が完了していない場合，すなわち，タイマーＡが所定時間を超過していない場合である。この場合も通報完了フラグＦＡはオフのままである。

（３）　前回以前の制御動作では複写用紙のジャムの発生が検知されており，既に，データ通信装置１０７への通報が完了している場合である。この場合は，上記ステップＳ７０６の動作により通報完了フラグＦＡはオンとなっている。いずれの場合であっても，複写用紙のジャムが発生した状態でない場合は，常に通報完了フラグＦＡをオフにする（Ｓ７０７）。その後，タイマーＡをリセットして（Ｓ７０８），今回の制御動作については終了する。

【００４７】（実施例１の効果）前述したように実施例１に係る複写装置管理システムによれば，１台のデータ通信装置１０７が，複数の複写装置１０２乃至１０６を監視し，監視した結果を中央制御装置１０８へ通報するので，システム全体のコストを引き下げることができる。

【００４８】また，複写用紙のジャムがあらかじめ定めた一定時間継続した場合に，データ通信装置１０７および通信回線１０９を介して中央制御装置１０８へ通報することができるので，複写用紙のジャムのうち，複写装置のオペレーターが簡易に解消することができない複写用紙のジャムの発生のみを認識することができ，その場合に複写装置のオペレーターが電話等によるサービスの依頼を受けることなく，適切なサービス対応をすることができる。

【００４９】〔実施例２〕

（実施例２に係る複写装置管理システムの構成）実施例２は，実施例１の構成に加えて，複写装置に備えられたドアーの開放状態を検知することにより，ドアーの開放により複写装置の複写動作が不可能となったことを通報するものである。なお，基本的な構成は実施例１と同様であり，同一符号は共通の構成を示すため，ここでは異なる部分のみを説明する。

【００５０】図４において，入出力ポート４０５は，複写装置１０２乃至１０６の内部のモーター・ソレノイド

・クラッチ等の出力負荷に関する信号や，例えば，複写装置に備えられたドアーの開放を監視するための複数のセンサー等により検知された信号等の入力信号が入力されるように接続されている。

【００５１】（実施例２に係る複写装置の動作）次に，図８のフローチャート参照して，実施例２に係る複写装置の制御動作を説明する。なお，フローチャートに示す制御動作は，複写装置１０２の電源がオンされている限り，あらかじめ定められた間隔ごとに繰り返し実行される。また，説明の便宜上，複写装置１０２の動作のみを説明し，複写装置１０３乃至１０６の動作についてはその説明を省略する。当然，複写装置１０３乃至１０６においても同様の動作がなされている。

【００５２】複写装置１０２において，複写装置１０２のドアーの開放が発生した状態であるかを監視する（Ｓ８０１）。ここで，複写装置１０２のドアーの開放が発生した状態である場合は，通報完了フラグＦＢを調べる（Ｓ８０２）。この通報完了フラグＦＢは，複写装置１０２のドアーの開放の状態が継続している場合に，その間複写装置１０２がデータ通信装置１０７へ同一のドアーの開放の状態を複数回通報しないようにするためのフラグである。ここで，通報完了フラグＦＢがオフである場合は，ドアーの開放状態監視用タイマーＢ（以下，「タイマーＢ」という。）があらかじめ定めた所定時間を超過したか否かを判断する（Ｓ８０３）。タイマーＢは，図示しない別のフローチャートにより計時制御する。タイマーＢが所定時間を超過した場合は，データ通信装置１０７からのポーリングを待って（Ｓ８０４），上記ドアーの開放状態に関する通報をデータ通信装置１０７へ送信する（Ｓ８０５）。通報の送信が終了した後，上記ステップＳ７０２においてオフした通報完了フラグＦＢをオンする（Ｓ８０６）。これにより，今回発生したドアーの開放についてはデータ通信装置１０７への通報が既に完了したこととなる。その後，今回の制御動作については終了する。

【００５３】上記ステップＳ８０３において，タイマーＢが所定時間を超過していない場合は，今回の制御動作については何もせずに終了する。また，上記ステップＳ８０２において，通報完了フラグＦＢがオンである場合は，前回の制御動作の際，既にデータ通信装置１０７への通報は完了していることを示しているので，今回の制御動作については終了する。下記に示すように，ドアーの開放状態が解除されて，通報完了フラグＦＢがオフされるまでは，この状態を継続する。

【００５４】上記ステップＳ８０１において，複写装置１０２のドアーの開放が発生した状態でない場合については，次のような場合が想定される。

（１）　前回の制御動作から引き続き複写装置１０２のドアーの開放の発生が検知されていない場合である。この場合は通報完了フラグＦＢはオフのままである。

（２）　前回以前の制御動作では複写装置１０２のドアーの開放が検知されており，いまだ，データ通信装置１０７への通報が完了していない場合，すなわち，タイマーＢが所定時間を超過していない場合である。この場合も通報完了フラグＦＢはオフのままである。

（３）　前回以前の制御動作では複写装置１０２のドアーの開放が検知されており，既に，データ通信装置１０７への通報が完了している場合である。この場合は，上記ステップＳ８０６の動作により通報完了フラグＦＢはオンとなっている。いずれの場合であっても，複写装置１０２のドアーの開放が発生した状態でない場合は，常に通報完了フラグＦＢをオフにする（Ｓ８０７）。その後，タイマーＢをリセットして（Ｓ８０８），今回の制御動作については終了する。

【００５５】（実施例２の効果）前述したように実施例２に係る複写装置管理システムによれば，複写装置１０２のドアーの開放があらかじめ定めた一定時間継続した場合に，データ通信装置１０７および通信回線１０９を介して中央制御装置１０８へ通報することができるので，複写装置１０２乃至１０６のドアー開放のうち，複写装置１０２乃至１０６のオペレーターが簡易に解消することができないドアーの開放，例えば，ドアーの破損あるいはドアー開放センサーの故障等の発生のみを認識することができ，その場合に，複写装置１０２乃至１０６のオペレーターが電話等によるサービスの依頼を受けることなく，適切なサービス対応をすることができる。

【００５６】〔実施例３〕

（実施例３に係る複写装置管理システムの構成）実施例３は，実施例１の構成に加えて，複写装置に付加された図示しない原稿自動送り装置の原稿ジャムの状態を検知することにより，原稿ジャムにより複写装置の複写動作が不可能となったことを通報するものである。なお，基本的な構成は実施例１と同様であり，同一符号は共通の構成を示すため，ここでは異なる部分のみを説明する。

【００５７】入出力ポート４０５は，複写装置１０２乃至１０６の内部のモーター・ソレノイド・クラッチ等の出力負荷に関する信号や，例えば，複写装置１０２乃至１０６に付加された原稿自動送り装置における原稿ジャムを監視するための複数のセンサー等により検知された信号等の入力信号が入力されるように接続されている。

【００５８】（実施例３に係る複写装置の動作）次に，図９のフローチャート参照して，実施例３に係る複写装置の制御動作を説明する。なお，フローチャートに示す制御動作は，複写装置１０２の電源がオンされている限り，あらかじめ定められた間隔ごとに繰り返し実行される。また，説明の便宜上，複写装置１０２の動作のみを説明し，複写装置１０３乃至１０６の動作についてはその説明を省略する。当然，複写装置１０３乃至１０６においても同様の動作がなされている。

【００５９】複写装置１０２に付加された図示しない原

稿自動送り装置において，原稿のジャムが発生した状態であるかを監視する（Ｓ９０１）。ここで，原稿のジャムが発生した状態である場合は，通報完了フラグＦＣを調べる（Ｓ９０２）。この通報完了フラグＦＣは，原稿のジャム発生の状態が継続している場合に，その間複写装置１０２がデータ通信装置１０７へ同一のジャム発生の状態を複数回通報しないようにするためのフラグである。ここで，通報完了フラグＦＣがオフである場合は，原稿のジャム状態監視用タイマーＣ（以下，「タイマーＣ」という。）があらかじめ定めた所定時間を超過したか否かを判断する（Ｓ９０３）。タイマーＣは，図示しない別のフローチャートにより原稿のジャムの状態を計時制御する。タイマーＣが所定時間を超過した場合は，データ通信装置１０７からのポーリングを待って（Ｓ９０４），上記複写用紙のジャムの発生状態に関する通報をデータ通信装置１０７へ送信する（Ｓ９０５）。通報の送信が終了した後，上記ステップＳ９０２においてオフした通報完了フラグＦＣをオンする（Ｓ９０６）。これにより，今回発生した原稿のジャムについてはデータ通信装置１０７への通報が既に完了したこととなる。その後，今回の制御動作については終了する。

【００６０】上記ステップＳ９０３において，タイマーＣが所定時間を超過していない場合は，今回の制御動作については何もせずに終了する。また，上記ステップＳ９０２において，通報完了フラグＦＣがオンである場合は，前回の制御動作の際，既にデータ通信装置１０７への通報は完了していることを示しているので，今回の制御動作については終了する。下記に示すように，原稿のジャムの状態が解除されて通報完了フラグＦＣがオフされるまでは，この状態を継続する。

【００６１】上記ステップＳ９０１において，原稿のジャムが発生した状態でない場合については，次のような場合が想定される。

（１）前回の制御動作から引き続き原稿のジャムの発生が検知されていない場合である。この場合は通報完了フラグＦＣはオフのままである。

（２）前回以前の制御動作では原稿のジャムの発生が検知されており，いまだ，データ通信装置１０７への通報が完了していない場合，すなわち，タイマーＣが所定時間を超過していない場合である。この場合も通報完了フラグＦＣはオフのままである。

（３）前回以前の制御動作では原稿のジャムの発生が検知されており，既に，データ通信装置１０７への通報が完了している場合である。この場合は，上記ステップ９０６の動作により通報完了フラグＦＣはオンとなっている。いずれの場合であっても，複写用紙のジャムが発生した状態でない場合は，常に通報完了フラグＦＣをオフにする（Ｓ９０７）。その後，タイマーＣをリセットして（Ｓ９０８），今回の制御動作については終了する。

【００６２】（実施例３の効果）前述したように実施例３に係る複写装置管理システムによれば，原稿自動送り装置における原稿のジャムがあらかじめ定めた一定時間継続した場合に，データ通信装置１０７および通信回線１０９を介して中央制御装置１０８へ通報することができるので，原稿のジャムのうち，複写装置１０２乃至１０６のオペレーターが簡易に解消することができない原稿のジャム，例えば，原稿自動送り装置自体の故障あるいはジャムセンサーの故障等の発生のみを認識することができ，その場合に，複写装置１０２乃至１０６のオペレーターが電話等によるサービスの依頼を受けることなく，適切なサービス対応をすることができる。

【００６３】〔実施例４〕

（実施例４に係る複写装置管理システムの構成）実施例４は，実施例１の構成に加えて，回数を計数するカウンタとカウンタの結果を記憶するＲＡＭを有するものである。なお，基本的な構成は実施例１と同様であり，同一符号は共通の構成を示すため，ここでは異なる部分のみを説明する。

【００６４】（実施例４に係る複写装置の動作）次に，図１０のフローチャート参照して，実施例４に係る複写装置の制御動作を説明する。なお，フローチャートに示す制御動作は，複写装置１０２が複写動作を実行しているときに限り，あらかじめ定められた間隔ごとに繰り返し実行される。また，説明の便宜上，複写装置１０２の動作のみを説明し，複写装置１０３乃至１０６の動作についてはその説明を省略する。当然，複写装置１０３乃至１０６においても同様の動作がなされている。

【００６５】複写動作を実行している複写装置１０２において，複写用紙が図示しない用紙排出部に排出されたか否かを監視する（Ｓ１００１）。ここで，複写用紙が排出されたか否かの監視は，排出信号のオン・オフによりおこなわれる。すなわち，１枚の複写用紙が上記用紙排出部へ排出完了すると上記排出信号がオンの状態となる。次に，上記排出信号を確認すると同時に上記排出信号がオフとなり，次の複写用紙が上記用紙排出部へ排出完了するまで上記排出信号がオフの状態を保持する。これにより複写用紙が排出されたか否かの監視がおこなわれる。

【００６６】上記ステップＳ１００１において，複写用紙が上記用紙排出部に排出されなかった場合は，通報完了フラグＦＤを調べる（Ｓ１００２）。この通報完了フラグＦＤは，複写用紙のジャム発生の回数があらかじめ定めた所定回数に達している状態が継続している場合に，その間複写装置１０２がデータ通信装置１０７へ同一のジャム発生の状態を複数回通報しないようにするためのフラグである。ここで，通報完了フラグＦＤがオフである場合は，複写用紙のジャムが発生していないか否かを監視し（Ｓ１００３），ジャムが発生している場合は，今回の複写動作で発生したジャムが前回の複写動作

で発生したジャムと同一原因であるか否かを判断する（Ｓ１００４）。同一原因であるか否かの判断は，例えば，複写用紙のジャムが発生した箇所が同一であるか等によりおこなう。すなわち，ジャムが発生した箇所が異なれば，搬送路に複数備えられたセンサーのうち異なるセンサーが複写用紙を検知するので，どのセンサーによりジャムが検知されたかによって同一原因であるか否かを判断する。

【００６７】上記ステップＳ１００４において，前回の複写動作で発生したジャムと同一原因である場合は，用紙ジャム回数カウンターＣＤを「１」加算し（Ｓ１００５），上記用紙ジャム回数カウンターＣＤがあらかじめ定めて所定回数値に達したか否かを判断する（Ｓ１００６）。上記用紙ジャム回数カウンターＣＤがあらかじめ定めて所定回数値に達した場合は，データ通信装置１０７からのポーリングを待って（Ｓ１００７），上記複写用紙のジャムの発生状態に関する通報をデータ通信装置１０７へ送信する（Ｓ１００８）。通報の送信が終了した後，上記ステップＳ１００２においてオフした通報完了フラグＦＤをオンする（Ｓ１００９）。それにより，今回連続して発生した複写用紙のジャムについてはデータ通信装置１０７への通報が既に完了したこととなる。その後，この制御動作については終了する。

【００６８】上記ステップＳ１００４において，前回の複写動作で発生したジャムと異なる原因である場合は，今回の複写用紙のジャムの原因を記憶し（Ｓ１０１０），上記用紙ジャム回数カウンターＣＤを「１」にする（Ｓ１０１１）。その後，この制御動作については終了する。

【００６９】上記ステップＳ１００６において，上記用紙ジャム回数カウンターＣＤがあらかじめ定めた所定回数値に達していない場合は，今回のこの制御動作については終了する。また，上記ステップＳ１００３において，複写用紙のジャムが発生していない場合は，今回のこの制御動作については，何もせずに終了する。

【００７０】また，上記ステップＳ１００２において，通報完了フラグＦＤがオンである場合は，前回の制御動作の際，既にデータ通信装置１０７への通報は完了していることを示しているので，今回の制御動作については終了する。後述するように，複写用紙のジャムの状態が解除されて，通報完了フラグＦＤがオフされるまでは，この状態を継続する。

【００７１】上記ステップＳ１００１において，複写用紙が上記用紙排出部に排出された場合は，上記用紙ジャム回数カウンターＣＤをリセットし（Ｓ１０１２），今回の制御動作については終了する。

【００７２】（実施例４の効果）前述したように実施例４に係る複写装置管理システムによれば，複写用紙のジャムがあらかじめ定めた回数発生した場合に，データ通信装置１０７および通信回線１０９を介して中央制御装置１０８へ通報することができるので，複写用紙のジャムのうち，センサー・紙搬送部品等の故障，ジャムを起こした複写用紙を完全に除去できず紙片が装置内に残存している等の理由により，頻繁に起こる複写用紙のジャムの発生のみを認識することができ，その場合に，複写装置１０２乃至１０６のオペレーターが電話等によるサービスの依頼を受けることなく，適切なサービス対応をすることができる。

【００７３】〔実施例５〕

（実施例５に係る複写装置管理システムの構成）実施例５は，実施例４の構成に加えて，複写装置に付加された原稿自動送り装置の原稿ジャムの状態を検知することにより，原稿ジャムにより複写装置の複写動作が不可能となったことを通報するものである。なお，基本的な構成は実施例４と同様であり，同一符号は共通の構成を示すため，ここでは異なる部分のみを説明する。

【００７４】入出力ポート４０５は，複写装置１０２乃至１０６の内部のモーター・ソレノイド・クラッチ等の出力負荷に関する信号や，例えば，複写装置１０２乃至１０６に付加された原稿自動送り装置における原稿ジャムを監視するための複数のセンサー等により検知された信号等の入力信号が入力されるように接続されている。

【００７５】（実施例５に係る複写装置の動作）次に，図１１のフローチャート参照して，実施例５に係る複写装置の制御動作を説明する。なお，フローチャートに示す制御動作は，複写装置１０２が複写動作を実行しているときに限り，あらかじめ定められた間隔ごとに繰り返し実行される。また，説明の便宜上，複写装置１０２の動作のみを説明し，複写装置１０３乃至１０６の動作についてはその説明を省略する。当然，複写装置１０３乃至１０６においても同様の動作がなされている。

【００７６】複写動作を実行している複写装置１０２に付加された自動原稿送り装置において，原稿が図示しない原稿排出部に排出されたか否かを監視する（Ｓ１１０１）。ここで，原稿が排出されたか否かの監視は，排出信号のオン・オフによりおこなわれる。すなわち，１枚の原稿が上記用紙排出部へ排出完了すると上記排出信号がオンの状態となる。次に，上記排出信号を確認すると同時に上記排出信号がオフとなり，次の原稿が上記用紙排出部へ排出完了するまで上記排出信号がオフの状態を保持する。これにより原稿が排出されたか否かの監視がおこなわれる。

【００７７】上記ステップＳ１１０１において，原稿が上記用紙排出部に排出されなかった場合は，通報完了フラグＦＥを調べる（Ｓ１１０２）。この通報完了フラグＦＥは，原稿のジャム発生の回数があらかじめ定めた所定回数に達している状態が継続している場合に，その間複写装置１０２がデータ通信装置１０７へ同一のジャム発生の状態を複数回通報しないようにするためのフラグである。ここで，通報完了フラグＦＥがオフである場合

は，原稿のジャムが発生していないか否かを監視し（Ｓ１１０３），ジャムが発生している場合は，今回の複写動作で発生したジャムが前回の複写動作で発生したジャムと同一原因であるか否かを判断する（Ｓ１１０４）。同一原因であるか否かの判断は，例えば，原稿のジャムが発生した箇所が同一であるか等によりおこなう。すなわち，ジャムが発生した箇所が異なれば，原稿の搬送路に複数備えられたセンサーのうち異なるセンサーが原稿のジャムを検知するので，どのセンサーによってジャムが検知されたかによって同一原因であるか否かを判断する。

【００７８】上記ステップＳ１１０４において，前回の複写動作で発生したジャムと同一原因である場合は，原稿ジャム回数カウンターＣＥを「１」加算し（Ｓ１１０５），上記原稿ジャム回数カウンターＣＥがあらかじめ定めた所定回数値に達したか否かを判断する（Ｓ１１０６）。上記原稿ジャム回数カウンターＣＥがあらかじめ定めて所定回数値に達した場合は，データ通信装置１０７からのポーリングを待って（Ｓ１１０７），上記原稿のジャムの発生状態に関する通報をデータ通信装置１０７へ送信する（Ｓ１１０８）。通報の送信が終了した後，上記ステップＳ１００２においてオフした通報完了フラグＦＥをオンする（Ｓ１１０９）。それにより，今回連続して発生した原稿のジャムについてはデータ通信装置１０７への通報が既に完了したこととなる。その後，今回の制御動作については終了する。

【００７９】上記ステップＳ１１０４において，前回の複写動作で発生したジャムと異なる原因である場合は，今回の原稿のジャムの原因を記憶し（Ｓ１１１０），上記原稿ジャム回数カウンターＣＥを「１」にする（Ｓ１１１１）。その後，今回の制御動作については終了する。

【００８０】上記ステップＳ１１０６において，上記原稿ジャム回数カウンターＣＥがあらかじめ定めた所定回数値に達していない場合は，今回のこの制御動作については終了する。また，上記ステップＳ１１０３において，原稿のジャムが発生していない場合は，今回の制御動作については，何もせずに終了する。

【００８１】また，上記ステップＳ１１０２において，通報完了フラグＦＥがオンである場合は，前回の制御動作の際，既にデータ通信装置１０７への通報は完了していることを示しているので，今回の制御動作については終了する。後述するように，原稿紙のジャムの状態が解除されて，通報完了フラグＦＥがオフされるまでは，この状態を継続する。

【００８２】上記ステップＳ１１０１において，原稿が上記用紙排出部に排出された場合は，上記原稿ジャム回数カウンターＣＥをリセットし（Ｓ１１１２），今回の制御動作については終了する。

【００８３】（実施例５の効果）前述したように実施例５に係る複写装置管理システムによれば，原稿のジャムがあらかじめ定めた回数発生した場合に，データ通信装置１０７および通信回線１０９を介して中央制御装置１０８へ通報することができるので，原稿のジャムのうち，センサー・紙搬送部品等の故障，ジャムを起こした原稿を完全に除去できず，紙片が装置内に残存している等の理由により，頻繁に起こる原稿のジャムの発生のみを認識することができ，その場合に，複写装置１０２乃至１０６のオペレーターが電話等によるサービスの依頼を受けることなく，適切なサービス対応をすることができる。

【００８４】

【発明の効果】以上説明したように，本発明の複写装置管理システム（請求項１）は，１台のデータ通信装置が複数の複写装置を監視し，監視した結果を中央制御装置へ通報することにより，システム全体のコストを引き下げることができる。また，複数の複写装置が，複写動作を不可能とする状態を検知し，検知された状態が継続する時間を計時し，計時した時間があらかじめ定められた時間を超える場合にその状態を通報要因としてデータ通信装置へ通報することを決定することにより，複写動作を不可能とする状態のうち，複写装置のオペレーターが簡易に解消することができない等の慢性的な状態のみをデータ通信装置へ通報するので，データ通信装置における情報の渋滞を防止しつつ，顧客に対して適切なサービス対応をすることができる。

【００８５】また，複写装置管理システム（請求項２）は，複数の複写装置が，複写用紙のジャムを検知し，検知された複写用紙のジャムが継続する時間を計時し，計時した時間があらかじめ定められた時間を超える場合に複写用紙のジャムを通報要因としてデータ通信装置へ通報することを決定することにより，複写装置のオペレーターが簡易に解消することができない等の慢性的な複写用紙のジャムのみをデータ通信装置へ通報するので，データ通信装置における情報の渋滞を防止しつつ，複写用紙のジャムに関して適切なサービス対応をすることができる。

【００８６】また，複写装置管理システム（請求項３）は，複数の複写装置が，複写装置のドアーの開放を検知し，検知された複写装置のドアーの開放が継続する時間を計時し，計時した時間があらかじめ定められた時間を超える場合に複写装置のドアーの開放を通報要因としてデータ通信装置へ通報することを決定することにより，複写装置のオペレーターが簡易に解消することができない等の慢性的なドアーの開放状態のみをデータ通信装置へ通報するので，データ通信装置における情報の渋滞を防止しつつ，ドアーの開放に関して適切なサービス対応をすることができる。

【００８７】また，複写装置管理システム（請求項４）は，複数の複写装置が，原稿自動送り装置における原稿

のジャムを検知し，検知された原稿のジャムが継続する時間を計時し，計時した時間があらかじめ定められた時間を超える場合に原稿のジャムを通報要因としてデータ通信装置へ通報することを決定することにより，複写装置のオペレーターが簡易に解消することができない等の慢性的な原稿のジャムのみをデータ通信装置へ通報するので，データ通信装置における情報の渋滞を防止しつつ，原稿自動送り装置における原稿のジャムに関して適切なサービス対応をすることができる。。

【００８８】また，本発明の複写装置管理システム（請求項５）は，１台のデータ通信装置が複数の複写装置を監視し，監視した結果を中央制御装置へ通報することにより，システム全体のコストを引き下げることができる。また，複数の複写装置が，複写動作を不可能とする状態を検知し，検知された状態が連続して発生する回数を計数し，計数した回数があらかじめ定められた回数を超える場合にその状態を通報要因としてデータ通信装置へ通報することを決定することにより，複写動作を不可能とする状態のうち，複写装置のオペレーターが簡易に解消することができない等の慢性的な状態のみをデータ通信装置へ通報するので，データ通信装置における情報の渋滞を防止しつつ，顧客に対して適切なサービス対応をすることができる。

【００８９】また，複写装置管理システム（請求項６）は，複数の複写装置が，複写用紙のジャムを検知し，検知された複写用紙のジャムが連続して発生する回数を計数する計数し，計数した回数があらかじめ定められた回数を超える場合にその複写用紙のジャムを通報要因としてデータ通信装置へ通報することを決定することにより，複写装置のオペレーターが簡易に解消することができない等の慢性的な複写用紙のジャムのみをデータ通信装置へ通報するので，データ通信装置における情報の渋滞を防止しつつ，複写用紙のジャムに関して適切なサービス対応をすることができる。

【００９０】また，複写装置管理システム（請求項７）は，複数の複写装置が，原稿自動送り装置における原稿のジャムを検知し，検知された原稿のジャムが連続して発生する回数を計数する計数し，計数した回数があらかじめ定められた回数を超える場合にその原稿のジャムを通報要因としてデータ通信装置へ通報することを決定することにより，複写装置のオペレーターが簡易に解消することができない等の慢性的な原稿のジャムのみをデータ通信装置へ通報するので，データ通信装置における情報の渋滞を防止しつつ，原稿自動送り装置における原稿のジャムに関して適切なサービス対応をすることができる。

【図面の簡単な説明】

【図１】実施例１に係る複写装置管理システムの全体の構成を示すブロック図である。

【図２】実施例１に係る複写装置管理システムにおけるデータ通信装置の構成を示すブロック図である。

【図３】データ通信装置における制御部の構成を示すブロック図である。

【図４】実施例１に係る複写装置管理システムにおける複写装置の制御構成を示すブロック図である。

【図５】実施例１係る複写装置管理システムにおけるセレクティングの動作を示すフローチャートである。

【図６】本願発明に係る複写装置管理システムにおけるポーリングの動作を示すフローチャートである。

【図７】実施例１に係る複写装置の制御動作を示すフローチャートである。

【図８】実施例２に係る複写装置の制御動作を示すフローチャートである。

【図９】実施例３に係る複写装置の制御動作を示すフローチャートである。

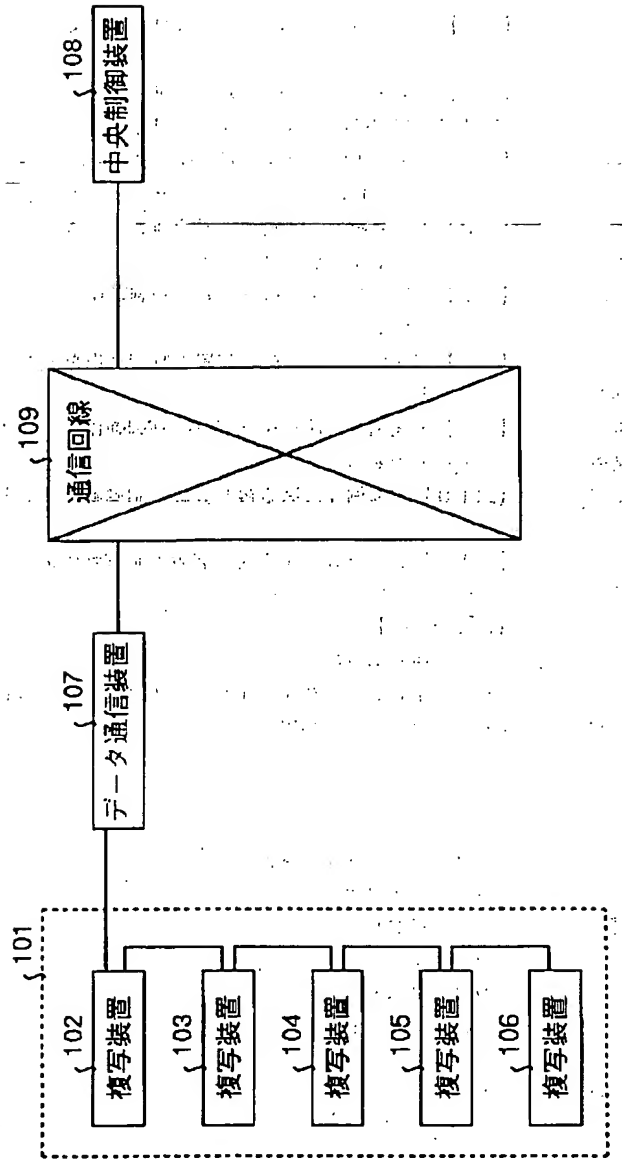
【図１０】実施例４に係る複写装置の制御動作を示すフローチャートである。

【図１１】実施例５に係る複写装置の制御動作を示すフローチャートである。

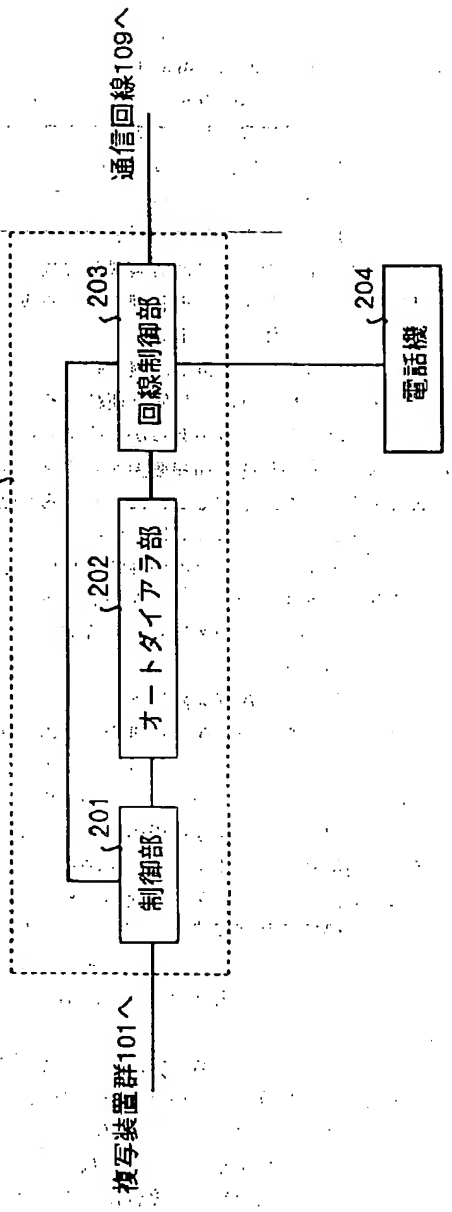
【符号の説明】

１０１　複写装置群
１０２，１０３，１０４，１０５，１０６　複写装置
１０７　データ通信装置
１０８　中央制御装置
１０９　通信回線
２０１　制御部
２０２　オートダイアラ部
２０３　回線制御部
３０１　ＣＰＵ
３０２　制御ＲＯＭ
３０３　ＲＡＭ
３０４　不揮発ＲＡＭ
３０５　計時ユニット
３０６　シリアル通信制御ユニット
３０７　入出力ポート
３０８　インターフェイス
３０９　バス
４０１　ＣＰＵ
４０２　ＲＯＭ
４０３　ＲＡＭ
４０４　不揮発ＲＡＭ
４０５　入出力ポート
４０６　計時ユニット
４０７　シリアル通信制御ユニット
４０８　インターフェイス
４０９　バス

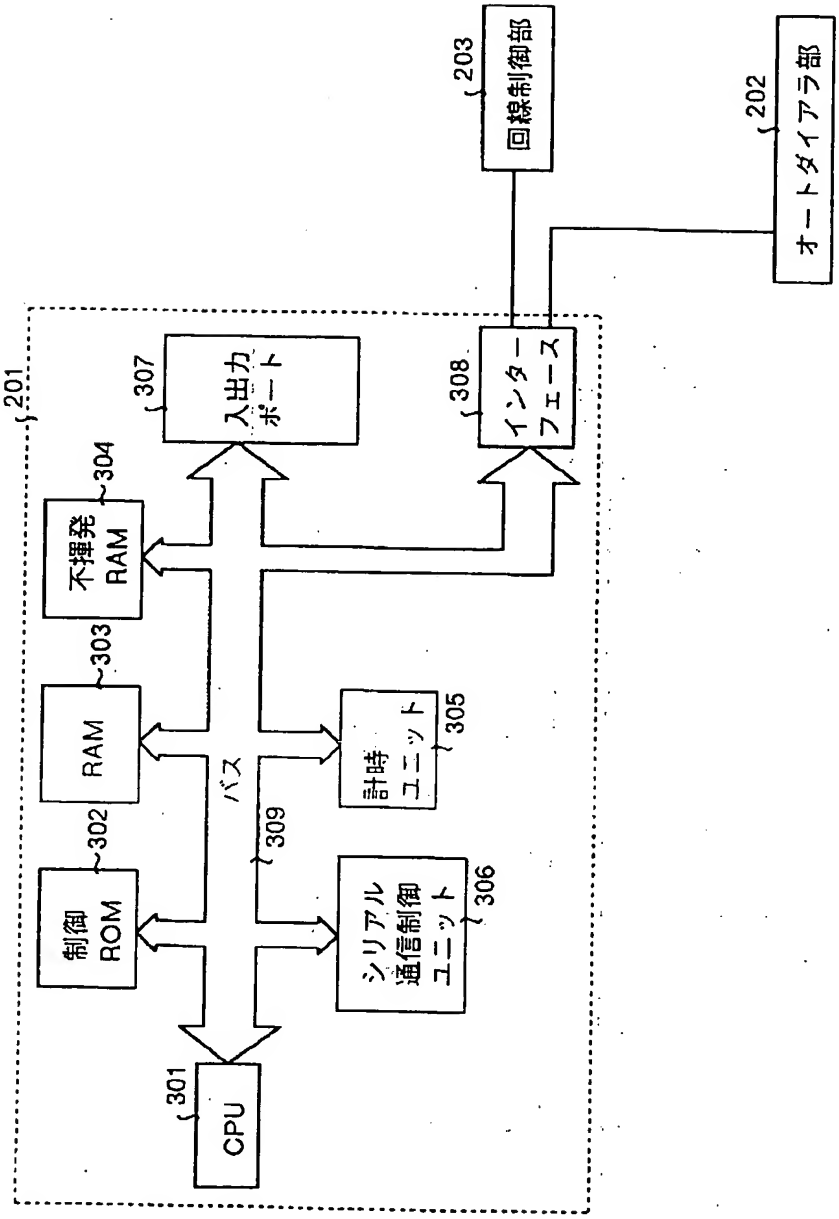
【図1】


108
中央制御装置
109
通信回線
107
データ通信装置
101
102
複写装置
103
複写装置
104
複写装置
105
複写装置
106
複写装置

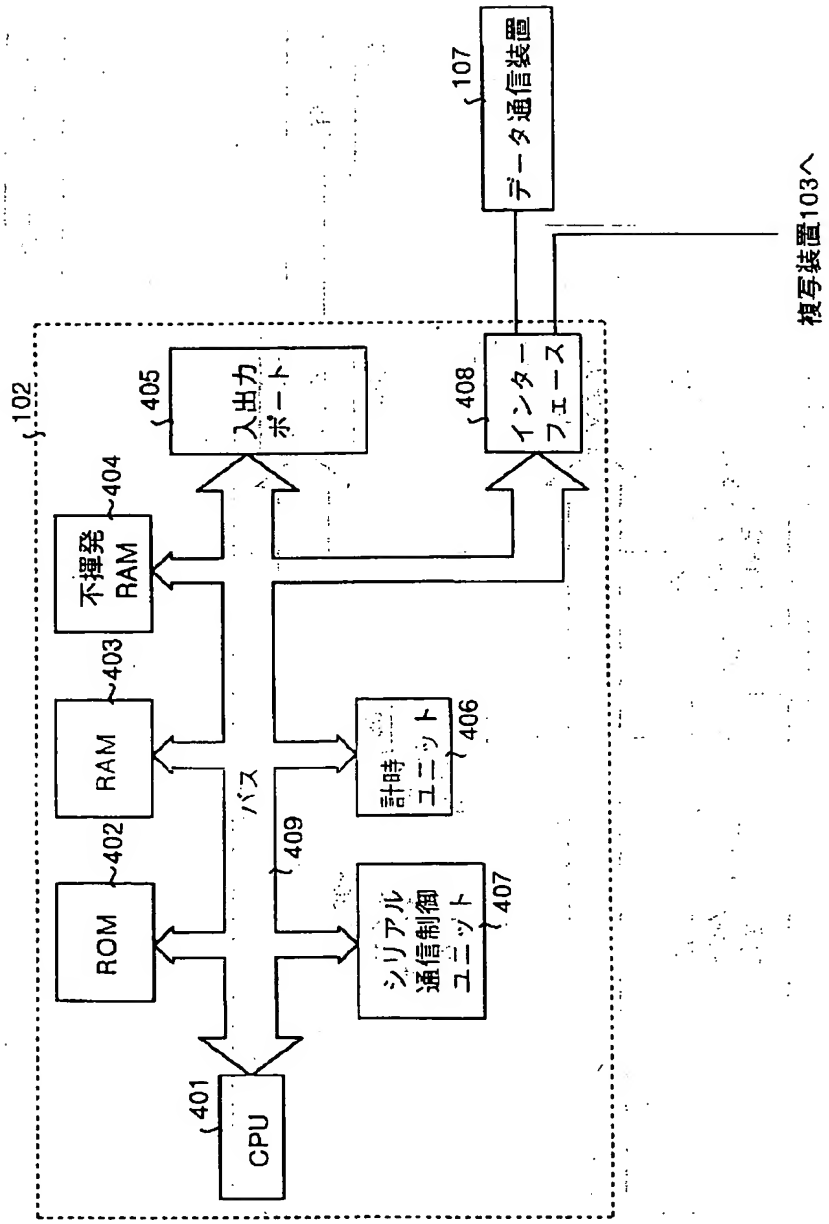
【図2】


通信回線109へ
107
203
回線制御部
204
電話機
202
オートダイアラ部
201
制御部
複写装置群101へ

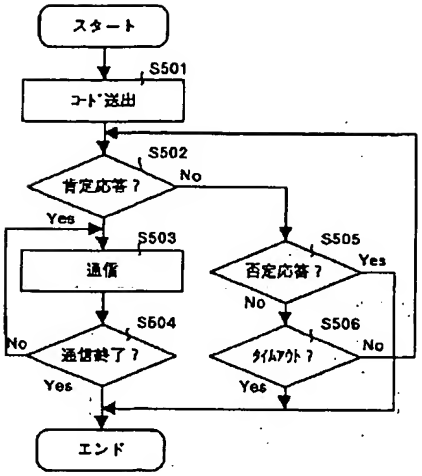
【図3】


201
CPU
301
制御ROM
302
RAM
303
不揮発RAM
304
入出力ポート
307
インターフェース
308
計時ユニット
305
シリアル通信制御ユニット
306
バス
309
回線制御部
203
オートダイアラ部
202

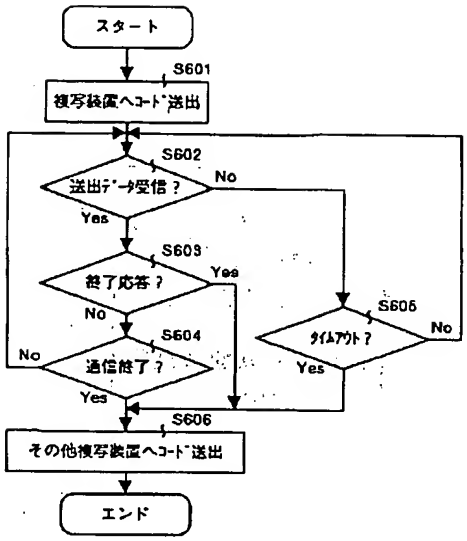
【図4】


102
107
データ通信装置
複写装置103へ
405
入出力ポート
408
インターフェース
404
不揮発RAM
403
RAM
402
ROM
401
CPU
バス
409
406
計時ユニット
407
シリアル通信制御ユニット

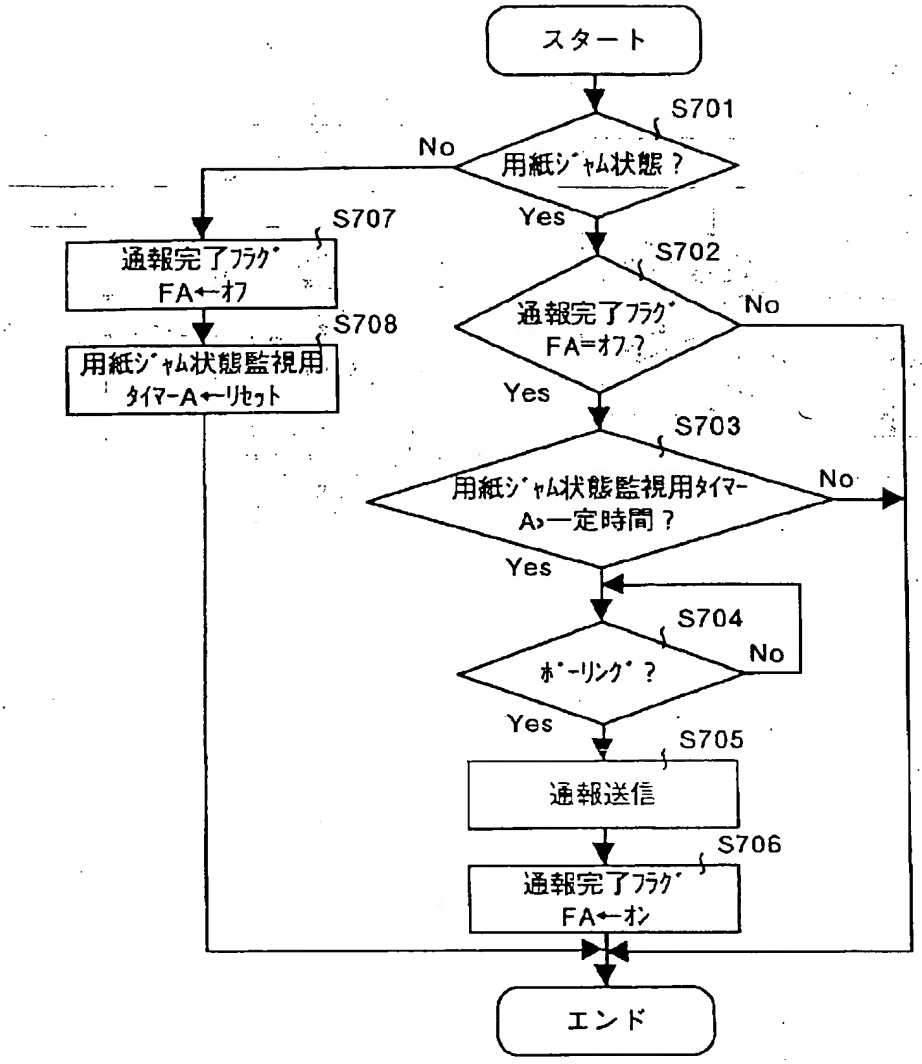
【図５】


スタート
S501
ｺｰﾄﾞ送出
S502
肯定応答？
No
Yes
S503
通信
S504
通信終了？
No
Yes
S505
否定応答？
Yes
No
S506
ﾀｲﾑｱｳﾄ？
No
Yes
エンド

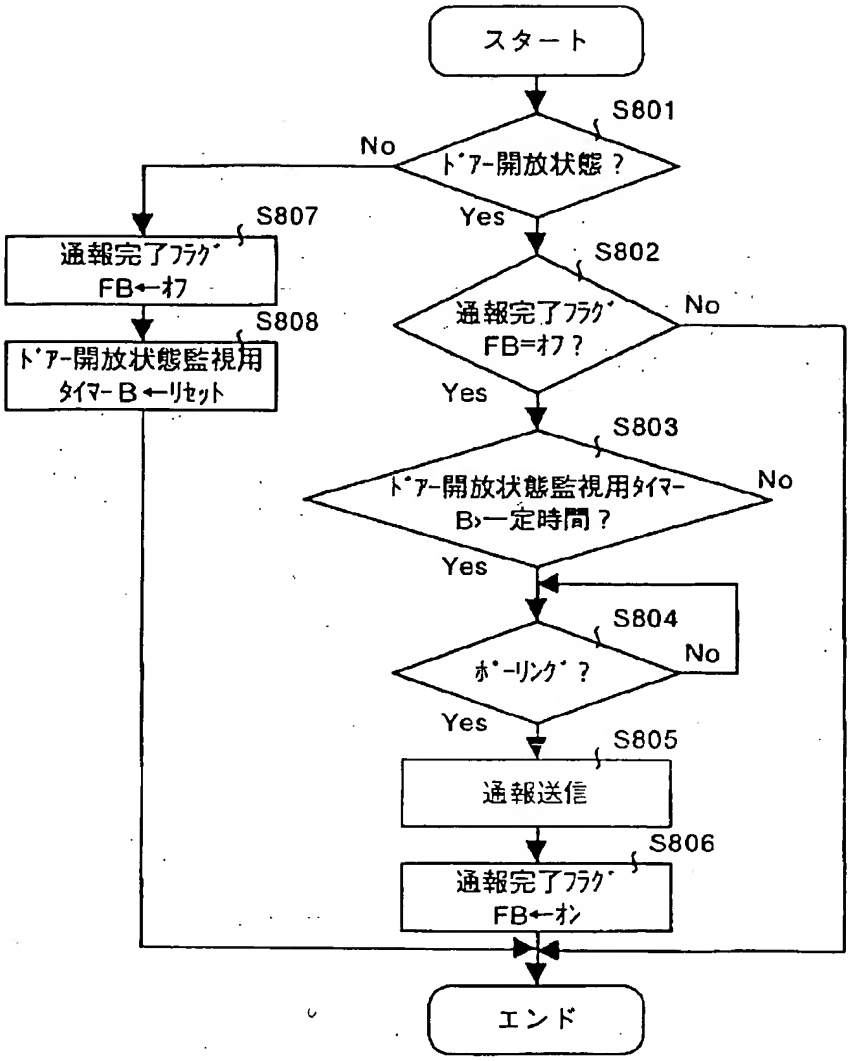
【図６】


スタート
S601
複写装置へｺｰﾄﾞ送出
S602
送出ﾃﾞｰﾀ受信？
No
Yes
S603
終了応答？
Yes
No
S604
通信終了？
No
Yes
S605
ﾀｲﾑｱｳﾄ？
No
Yes
S606
その他複写装置へｺｰﾄﾞ送出
エンド

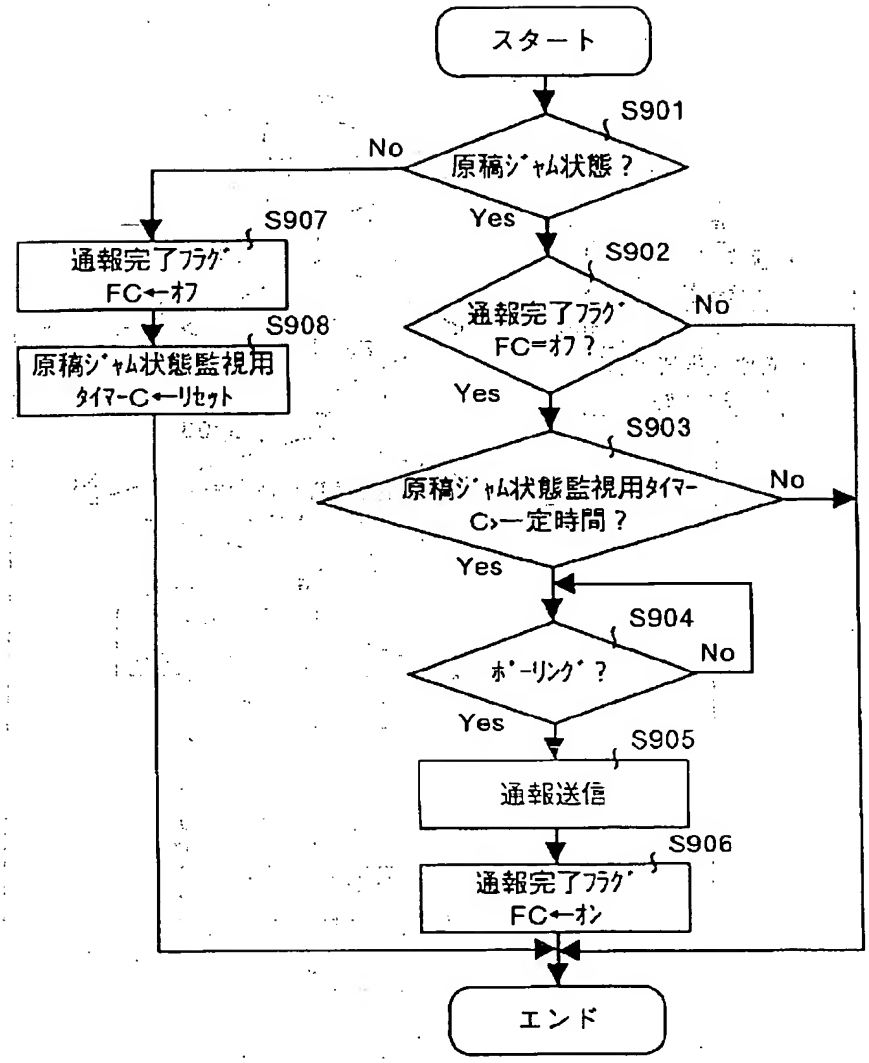
【図7】


スタート
S701
用紙ｼﾞｬﾑ状態？
No
Yes
S707
通報完了ﾌﾗｸﾞ
FA←オフ
S708
用紙ｼﾞｬﾑ状態監視用
ﾀｲﾏｰA←ﾘｾｯﾄ
S702
通報完了ﾌﾗｸﾞ
FA=ｵﾌ？
No
Yes
S703
用紙ｼﾞｬﾑ状態監視用ﾀｲﾏｰ
A>一定時間？
No
Yes
S704
ﾎﾟｰﾘﾝｸﾞ？
No
Yes
S705
通報送信
S706
通報完了ﾌﾗｸﾞ
FA←オン
エンド

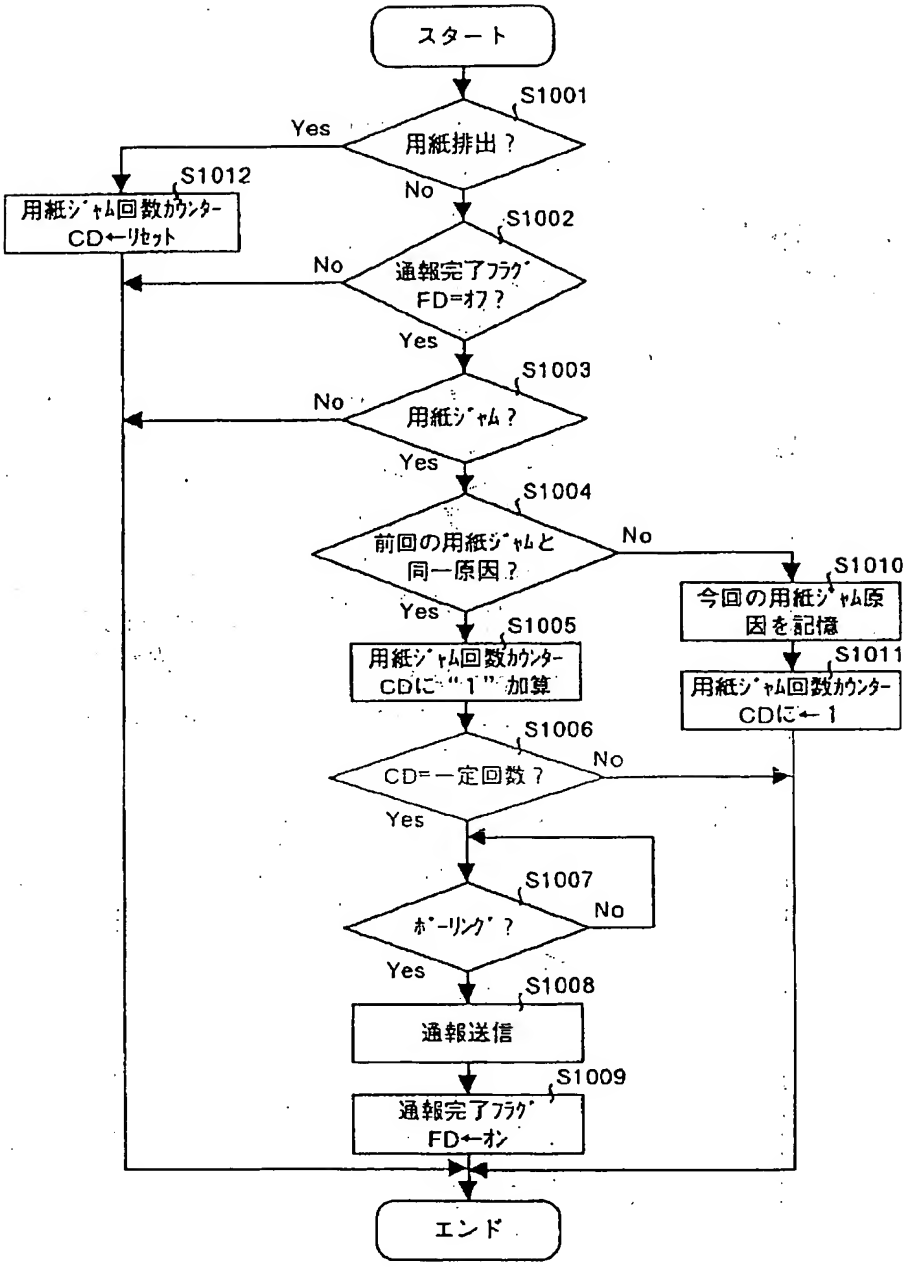
【図８】


スタート
S801
ﾄﾞｱｰ開放状態？
No
Yes
S807
通報完了ﾌﾗｸﾞ
FB←オフ
S808
ﾄﾞｱｰ開放状態監視用
ﾀｲﾏｰB←リセット
S802
通報完了ﾌﾗｸﾞ
FB=オフ？
No
Yes
S803
ﾄﾞｱｰ開放状態監視用ﾀｲﾏｰ
B>一定時間？
No
Yes
S804
ﾎﾟｰﾘﾝｸﾞ？
No
Yes
S805
通報送信
S806
通報完了ﾌﾗｸﾞ
FB←オン
エンド

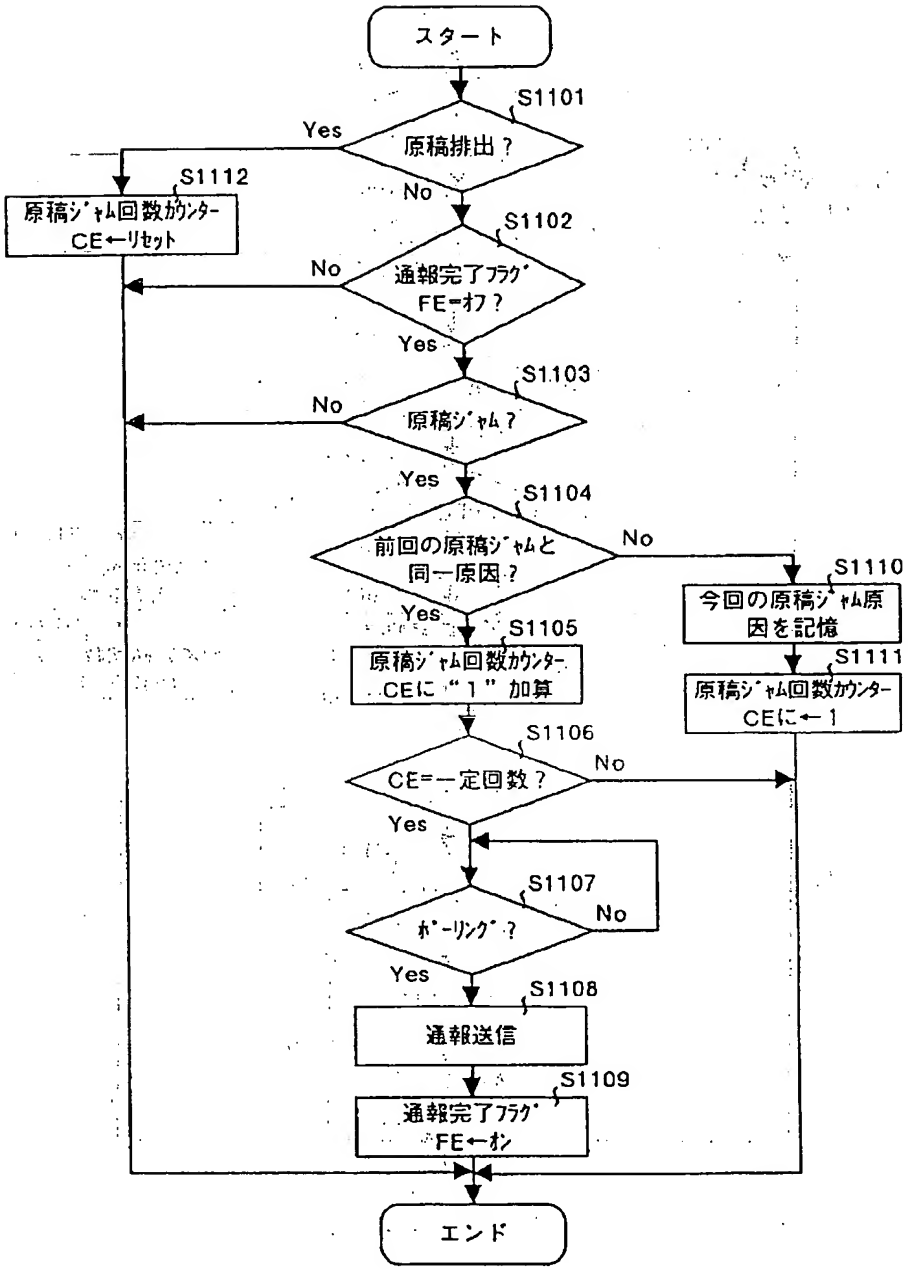
【図9】


スタート
S901
原稿ｼﾞｬﾑ状態？
No
Yes
S907
通報完了ﾌﾗｸﾞ
FC←ｵﾌ
S908
原稿ｼﾞｬﾑ状態監視用
ﾀｲﾏｰC←ﾘｾｯﾄ
S902
通報完了ﾌﾗｸﾞ
FC=ｵﾌ？
No
Yes
S903
原稿ｼﾞｬﾑ状態監視用ﾀｲﾏｰ
C>一定時間？
No
Yes
S904
ﾎﾟｰﾘﾝｸﾞ？
No
Yes
S905
通報送信
S906
通報完了ﾌﾗｸﾞ
FC←ｵﾝ
エンド

【図１０】


スタート
S1001
用紙排出？
Yes
No
S1012
用紙ｼﾞｬﾑ回数ｶｳﾝﾀｰ
CD←ﾘｾｯﾄ
S1002
通報完了ﾌﾗｸﾞ
FD=ｵﾌ？
No
Yes
S1003
用紙ｼﾞｬﾑ？
No
Yes
S1004
前回の用紙ｼﾞｬﾑと
同一原因？
No
Yes
S1010
今回の用紙ｼﾞｬﾑ原
因を記憶
S1011
用紙ｼﾞｬﾑ回数ｶｳﾝﾀｰ
CDに←1
S1005
用紙ｼﾞｬﾑ回数ｶｳﾝﾀｰ
CDに“1”加算
S1006
CD=一定回数？
No
Yes
S1007
ﾎﾟｰﾘﾝｸﾞ？
No
Yes
S1008
通報送信
S1009
通報完了ﾌﾗｸﾞ
FD←ｵﾝ
エンド

【図１１】


スタート
S1101
原稿排出？
Yes
No
S1112
原稿ｼﾞｬﾑ回数ｶｳﾝﾀｰ
CE←リセット
S1102
通報完了ﾌﾗｸﾞ
FE←オフ？
No
Yes
S1103
原稿ｼﾞｬﾑ？
No
Yes
S1104
前回の原稿ｼﾞｬﾑと
同一原因？
No
Yes
S1110
今回の原稿ｼﾞｬﾑ原
因を記憶
S1111
原稿ｼﾞｬﾑ回数ｶｳﾝﾀｰ
CEに←１
S1105
原稿ｼﾞｬﾑ回数ｶｳﾝﾀｰ
CEに“１”加算
S1106
CE=一定回数？
No
Yes
S1107
ﾎﾟｰﾘﾝｸﾞ？
No
Yes
S1108
通報送信
S1109
通報完了ﾌﾗｸﾞ
FE←オン
エンド